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SPRING BUSINESS.

THE advent of spring has always been hailed as a season of renewed activity for the building trades in the breaking of ground for construction work of different kinds.

The spring of 1918, however, presents a rather complicated aspect compared to that of former years. Building contractors are therefore concentrating their hopes and energies in a revival of remodeling activity in order to be in harmony with governmental desire for conservation of materials, which can be utilized in speeding up the war industry.

Organizations in the building trades are busy formulating plans for keeping alive the work of the contractor. It is a question of survival with no small number of those who operate modest shops in various parts of the country.

Hence it is important at this time that contractors should prepare for the advent of spring, utilizing every available means to arouse public interest and support in the campaign for remodeling, which not only the plumbing interests but all of the building trades are boosting.

A few appropriate and practical suggestions, which have a direct relation to this campaign to counteract the scarcity of new building operations, are now undoubtedly in order.

Aside from the united and co-operative methods for educating the people to the wisdom of remodeling now, there are logical suggestions for the individual plumbing and heating contractor, ideas of intimate value to him in business revival.

For instance the master plumber and fitter, in any community, will find it advisable to watch the newspapers for notices, relative to the transfer of property. These notices can be clipped and filed or placed in scrap books subject to personal investigation, as it were.

The new owners of pieces of property may be contemplating repairs and remodeling, or they may readily be persuaded to consider the need of certain kinds of improvements, which would render the property more valuable in rental worth.

There is also, of course, the list of building permits which appears in the newspapers from time to time, and which may give a contractor a cue for new business.

Court reports of the dispositions of estates and inheritances are also sources of interest to the wide-awake contractor on the still hunt for more customers.

These methods of getting next to new business are at hand and worth while. As a rule, it is advisable to meet prospects brought to light in these ways. The contractor, who has the initiative to get out and look them up, cultivating their acquaintance, may develop sources of business which he had long overlooked.

If the contractors are determined to maintain their status in the community and conserve their place in the sun of industry, despite the clouds that now obscure its full brilliancy, they must obviously get in line and overlook nothing of legitimate value in the drive to arouse public response to the recommendation that it is advantageous to "remodel now" rather than after the war.

We all know that any business in order to survive needs a certain amount of sustenance. In order to secure this, special and continued effort is often essential. Effort out of the ordinary is necessary at this time. The contracting interests can at any rate hold their own during the war period, if personal enterprise and co-operative action is consistently carried forward by those identified with the building trades.

HEATING GREENHOUSES

Notes on the Planning and Installation of Efficient Heating Systems in Greenhouses

By Charles L. Hubbard

Continued from Page 396 in the March 9th Issue.

In other cases it may be more convenient to use mitre coils, carrying them around the corner of the room. When vertical coils are used they must either be carried around a corner or mitred to secure the necessary flexibility. The proper connections for vertical mitre coils, whether for steam or hot water, are shown in Fig. 6. If steam is used, place the air valve as indicated. In case of hot water the air should be taken care of outside the coil as described later. The coils, as well as the supply and return piping, should be given a good pitch, both to assist in circulation and drainage and also to overcome any uneven places in the pipe, which are liable to occur through sagging

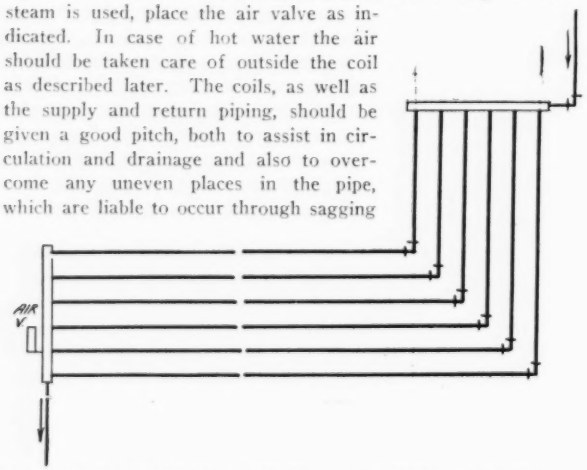


Fig. 6.—Method of Making Both Steam and Water Connections with Vertical Mitre Coils.

of long coils, if not properly supported. In general, coils and piping should be given a grade of 1 inch in 15 feet, if possible.

In the best construction special care is given to the support of the coils to prevent sagging, which causes air pockets and retards or stops the circulation in water systems and produces water-hammer and poor circulation in steam systems.

The older method of laying the coils on strips, nailed to the legs or supports of the benches, is not to be recommended, unless the benches are provided with legs of iron pipe resting upon a solid concrete floor, as shown in Fig. 7.

When the benches and their supports are of wooden construction it is best to rest the coils upon brick or concrete piers with a piece of piping across the top, as in Fig. 8. If the building is provided with a cement floor the piers may be built directly upon top of it; otherwise they should rest upon special foundations sunk into the ground. Vertical coils are supported upon hook plates attached to the building construction and are therefore more or less secure against sagging.

Systems of Piping.

The systems of piping generally follow one of two kinds, although these may be modified somewhat to meet the existing conditions in any given case. A simple diagram illustrating one method is shown in Fig. 9. While this is arranged for hot water, the layout for steam would be practically the same by omitting the expansion tank and placing air valves on the coils.

In Fig. 9 the supply pipe is carried vertically from the boiler to the highest point, and then horizontally just below the ridge to the far end of the building, where it branches and drops to the coils at the outer walls. The returns are at the ends nearest the boiler and are connected as indicated, thus completing the circuit. An arrangement for a three-bench greenhouse is shown in Fig. 10. A similar layout where the outer and central benches are on separate lines is illustrated in Fig. 11.

In Fig 9 the supply main should pitch downward from the high point, "A", over the boiler, to the far end, where it branches and drops to the coils. This is called the "down-hill" system and is preferable to the "uphill" system, so called, as it is more easily air vented. A 1-inch pipe carried from the point "A" to the expansion tank will serve as an air vent for the entire system as well as an expansion pipe.

In the "up-hill" system, the air vent would necessarily be placed at the far end of the line, which would be the highest point. In case of the "down-hill" system, with the coils pitched downward from the far end toward the boiler, all air will find its way upward to the point "A" both from the boiler and coils, thus venting the system automatically without the use of air valves. In case it is necessary to use certain radiators or coils, where an air pocket will be formed, a small vent pipe may be carried to the main vent or expansion pipe, thus avoiding the use of an air valve on the coil.

In case of a closed or pressure hot water system, where the expansion tank is sealed, the vent pipes may lead to an air trap of ample size located the same as the expansion tank in Fig. 9. Any good form of float trap may be used for air venting, provided the discharge valve is exposed when placed bottom upward.

The other method of piping mentioned is simply an extension of the one already shown, adapting it to large plants made up of several buildings or sections placed side by side. This is shown in diagram in Fig. 12. The main from the boiler leads to a header, extending across the ends of the individual buildings, with one or more branches extending to the far end of the buildings. In this case a vent pipe should be taken from the high point of each branch at "A", "A", "A", etc. and carried to the expansion pipe.

As previously stated, the piping for low-pressure steam, with a gravity return of condensation, is practically the same as for hot water, except in the matter of air venting. In this case automatic air valves are used on each individual coil.

Sometimes, for various reasons, it is preferable to carry the supply and return branches in trenches beneath the floor instead of overhead.. Such an arrangement is shown in Fig.

13, being applied to a large greenhouse with double rows of benches set crosswise of the building. The coils are supported beneath the benches by hangers and are connected with mains carried in a trench beneath the floor as indicated. Each coil is provided with a valve upon both supply and return, so it may be cut out wherever desired.

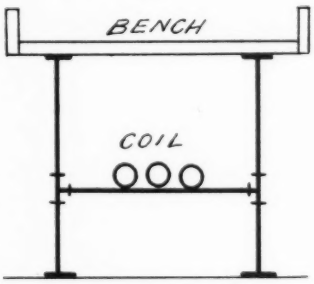


Fig. 7.—Coil Support for Bench, with Iron Pipe Frame.

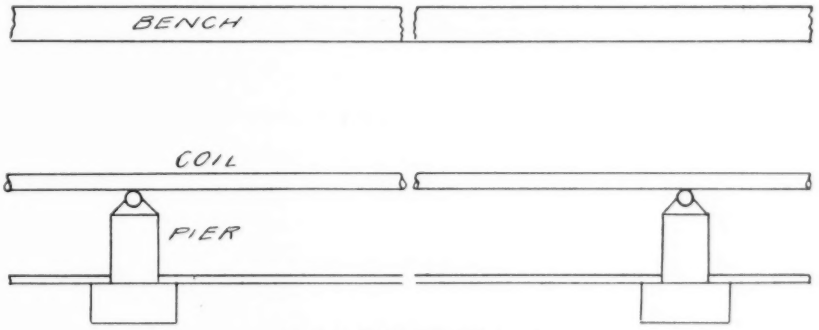


Fig. 8.—Coil Supported on Piers.

Pipe Sizes.

The sizes of the supply and return mains should be practically the same as for any other system of direct heating, extending over a comparatively large ground area. The following table gives sizes for steam radiation for runs of 100, 200 and 400 feet, with a total drop in pressure of ¼ pound in each case.

Pipe Sizes for Steam Heating.

Diam. of Pipe	Square Feet of Radiation		
	100-Ft. Run	200-Ft. Run	400-Ft. Run
1	60 to 80	40 to 60	20 to 40
1¼	80 to 150	60 to 100	40 to 70
1½	150 to 250	100 to 160	70 to 120
2	250 to 500	160 to 350	120 to 250
2½	500 to 1,000	350 to 700	250 to 500
3	1,000 to 1,600	700 to 1,100	500 to 800
3½	1,600 to 2,300	1,100 to 1,600	800 to 1,200
4	2,300 to 3,300	1,600 to 2,300	1,200 to 1,700
5	3,300 to 6,000	2,300 to 4,000	1,700 to 3,000
6	6,000 to 10,000	4,000 to 7,000	3,000 to 5,000
7	10,000 to 14,000	7,000 to 10,000	5,000 to 7,000
8	14,000 to 20,000	10,000 to 14,000	7,000 to 10,000

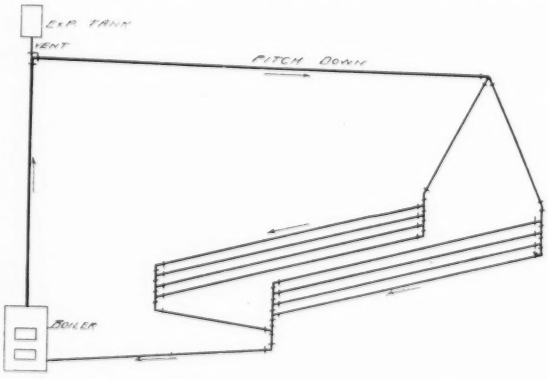


Fig. 9.—Diagram Illustrating "Down-Hill" System of Piping for Hot Water Heating.

The size of return is based upon the corresponding supply, and may be taken as follows:

Supply Inches	Return Inches	Supply Inches	Return Inches
1	1	3½	2½
1¼	1	4	3
1½	1¼	5	3
2	1½	6	3½
2½	2	7	3½
3	2½	8	3½

For hot water the following may be used, provided there is a fair head for producing a circulation (10 ft. or more). In this case the flow and return mains are made the same size, and the length of run includes the entire circuit. That is, if a greenhouse is 100 feet in length, the circuit will be at least 200 feet, and so on.

Pipe Sizes for Hot Water Heating.

Diam. of Pipe	Square Feet of Radiation							
	100-Ft. Run	200-Ft. Run	300-Ft. Run	400-Ft. Run	500-Ft. Run	600-Ft. Run	700-Ft. Run	800-Ft. Run
1¼	120	100						
1½	200	150	100					
2	400	300	250	200	150			
2½	700	500	400	350	300	250		
3	1,100	800	600	550	500	450	400	300
3½	1,700	1,200	900	800	700	650	600	450
4	2,400	1,700	1,400	1,200	1,050	950	900	700
5		2,800	2,300	2,000	1,400	1,700	1,550	1,300
6				3,200	2,800	2,600	2,400	2,000
7						3,600	3,400	3,000
8						4,700	4,400	3,900

Special Systems of Heating.

Thus far we have only mentioned the ordinary open-tank system of hot water heating, and low-pressure steam with gravity return of condensation.

When the system is properly designed and installed, the open-tank should give satisfactory results, even in plants of large size.

The advantage of the closed or pressure system is that the temperature of the water may be raised considerably above that, which is possible with the open tank system, which of course results in greater radiator efficiency and a more positive circulation. The pressure on a system of this kind is produced by placing a device called a "generator" or intensifier" in the pipe leading to the expansion tank, which will only open for the passage of water after a pressure of about 10 pounds per square inch has been reached, which corresponds to a temperature of 240 degrees. The principle of such a device is very simple and is shown in diagram in Fig.

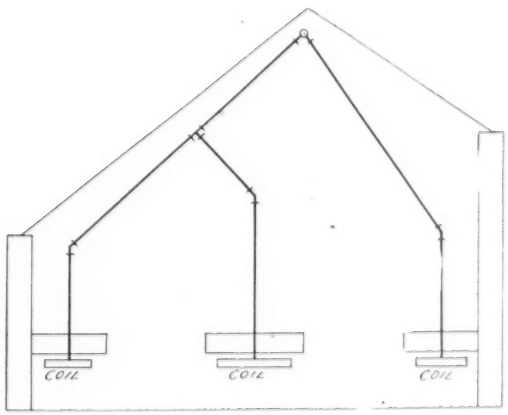


Fig. 10.—Showing Branch Connections for Three-Bench House.

14. When the pressure in the system reaches 10 pounds, due to the expansion of the water, the relief valve opens and allows a sufficient amount to pass through to the expansion tank to hold the pressure at this point. When the temperature falls, and the pressure is sufficiently lowered, the weight

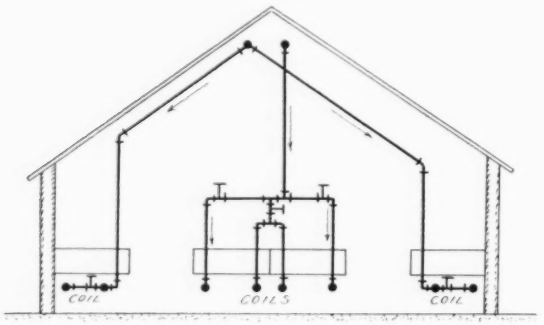


Fig. 11.—Pipe Connections with Outside Benches on a Separate Line.

of the water column in the expansion pipe will open the check valve and allow the water, which was forced out, to pass back into the system.

The relief valve is made in a variety of forms, employing springs, weights, or mercury seals. As these are usually connected with the main return, it is necessary to employ an air trap for venting the system automatically. Any lower temperature can be employed with the pressure system the same as with the open tank, but it has the advantage of greater heating capacity in case of an emergency, and will also improve the circulation in cases, where it tends to be sluggish, provided the piping is in fairly good alignment.

It must be borne in mind, however, that greater heating capacity cannot be obtained without sufficient boiler power back of it. The generator or intesifier does not create more heat but simply makes it possible to utilize a greater boiler capacity.

Another way of improving the circulation, and therefore raising the average temperature of the water in the system, is by means of an electrically driven circulator or small centrifugal pump. This does not, under ordinary conditions, raise the initial temperature of the water, but simply increases the velocity of flow and therefore reduces the drop in temperature in passing through the system, which of course raises the average. This is especially adapted to temporary use in starting up the circulation quickly and for continuous service in very cold weather. Systems which are sluggish in starting up will often circulate freely after once under way, and in cases of this kind a pump is of great service. They are also of assistance, where the piping has gotten out of alignment, although here the lines and coils should be regraded to get the best results. When forced circulation is used, there is danger of short-circuting, unless throttle valves are placed in the principal branches for equalizing the flow.

If it is desired to raise the water temperature with a pump, a generator or intensifier must be used, the same as with the open-tank system, or a closed tank and air compressor must be employed. The former, however, will be found the simpler for this class or work, the closed tank being better

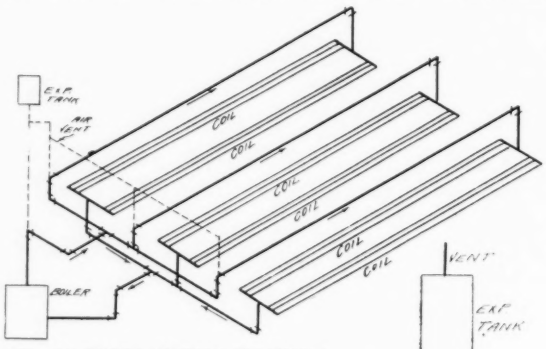


Fig. 12.—Piping Diagram for Greenhouse of Three Sections.

adapted to large heating systems, which are under the direct charge of an engineer.

Under ordinary conditions of steam heating, the entire system is operated under the same pressure, and the condensation returned to the boiler by gravity. The objection to this in very large plants is the excessively large distributing mains required for the low pressures used, and the difficulty in some cases of obtaining the proper grade for a gravity return without a deep pit for the boilers. In cases of this kind the steam may be distributed at a pressure of 30 to 40 pounds, through comparatively small pipes, and the pressure reduced at each building through a regulating valve. Each unit in this case would have its own trap for discharging the condensation into a return main, leading back to a vented receiver, from which the water may be returned to the boilers either by an automatic pump or a return trap. With this arrangement the boilers may be set at any grade, which is the most convenient, it only being necessary to pit the receiver and pump or trap, as the water is easily raised and forced into the boiler by the higher pressure available. This scheme also makes it possible to carry different pressures in the different buildings or sections, which is sometimes desirable in growing different kinds of stock.

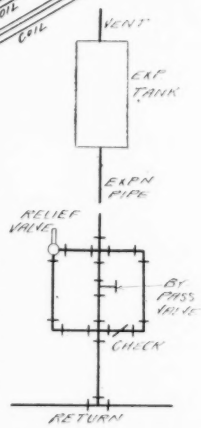


Fig. 14.—Diagram Illustrating "Generator" or "Intensifier" for High Pressure Hot Water Systems.

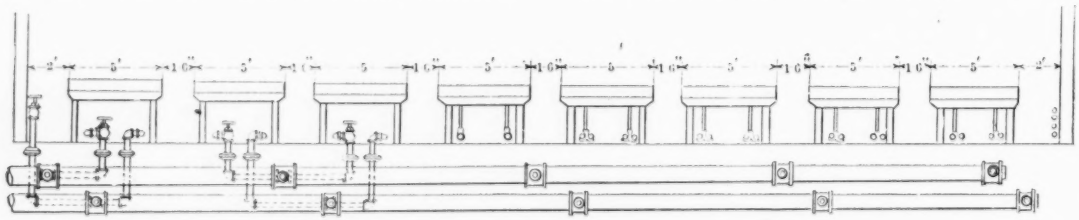


Fig. 13.—Pipe Mains Carried in an Underground Bench.

Boilers.

The best type of boiler will depend somewhat upon the size of plant. For buildings of small size the round, cast-iron

(Continued on Page 433.)

DOMESTIC HOT WATER CONNECTIONS

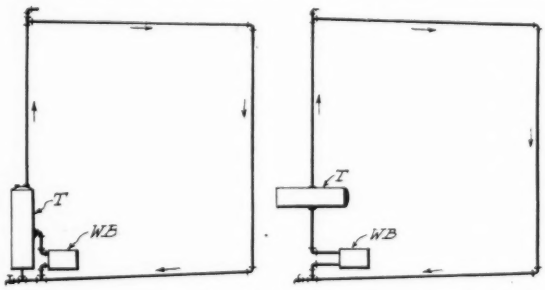
The Sixth of a Series of Articles, Which, When Completed, Should Help Plumbers to Solve all So-Called Range-Boiler and Hot Water Supply Problems

By Harold L. Alt

Continued from Page 398 in the March 9th Issue.

One Tank, One Source and Circulation to Fixtures Above.

This combination would be piped exactly as illustrated for Figs. 52 and 53 with the exception that the fixture branches would go *up* from the hot water supply line instead of *down*, as they did when the fixtures were on the same level; the



Figs. 56, A and B.

circulation is in no way changed except that running both lines under the floor—which is not desirable anyway—would be out of the question when the fixtures are on the floor above, as it would not bring the circulation even reasonably close to the outlets. To get the best results the dead end of pipe between the circulating main and the fixture should not exceed a developed length of over five feet and three feet is much better.

Two Tanks, One Source and Circulation to Fixtures Above.

With two tanks instead of one the supply and return may be run the same as illustrated in Figs. 52 and Fig. 53 with the branches going up instead of down, *provided* that the hot water outlets of the two tanks and the bottom connections are made into headers as explained and shown for Fig. 55. The flow connection from the water back must also be made as illustrated in Fig. 55.

Series and Parallel Circulation.

It is desired at this juncture to point out that there are *two* methods of circulating, a fact seemingly very often neglected; these two schemes may well be termed "series" and "parallel" circulation. The circulation connections, so far shown, have all been of the parallel class—that is the water back or other source of heat circulates to and from the tank without interfering with or assisting the line circulation; also

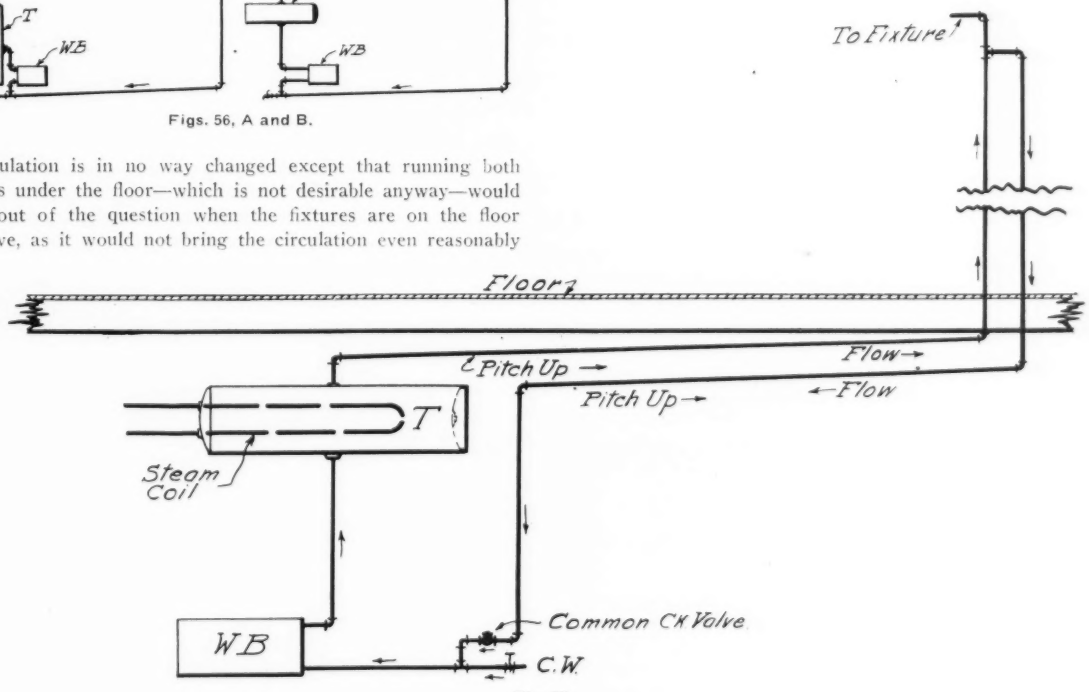


Fig. 57.

the line circulation starts from the tank and returns to the tank without interfering with or assisting the water back circulation, each being an independent movement of the water. It is true that in some cases these two circulations may travel a portion of their circuits in a common pipe, yet, even then, neither circulation depends upon the other.

In the series system, however, a different condition is obtained; as its name implies the parts of the system are piped so that all of the portions are in series and the water in circulating must pass through *all* the piping water backs, tanks, coils, etc. consecutively. A diagrammatic illustration of the two methods of piping is shown in Figs. 56 A and B; it can be seen that in Fig. 56 A the water back WB can circulate to the tank T without necessarily circulating around the pipe loop. In Fig. 56 B, however, the water back WB supplies hot water to the tank T but takes its cold water from the return to the tank through the check valve and cold water back. Although the tank temperature is kept much higher in winter with the steam, no circulation can be maintained, probably because the check valve is a common check and is not set on a 45 deg. angle as illustrated in Fig. 51.

It is much easier to arrange a series circulation, when the tank is above the source of heat (as shown in Fig. 56 B), than it is when it is on the same level. Yet even with the tank on the same level a series system may sometimes be worked out, for instance, the parallel system, shown in Fig. 53, could be arranged for a series flow by connecting up as shown in Fig. 58. Here the water is heated in the water back W B, passes out and into the circulation loop up to the high point, and then, what is not drawn off and used in the fixtures, is returned and stored in the tank. It will be noted that no check valve is required with this scheme of piping,

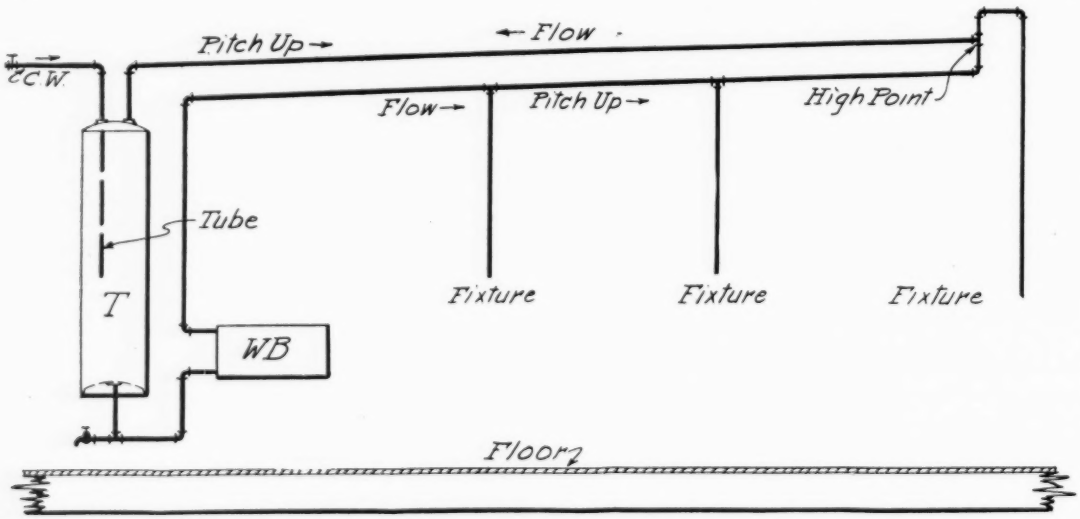


Fig. 58.

return line of the pipe loop; thus every pint of water, which is heated and passes up the flow pipe into the tank, displaces another pint of water in the tank which flows out into the circulation line, the pipe being able to receive it owing to the fact that a pint of water has *at the same time* passed from the end of the return line up into the water back to replace the pint that was heated. This process, being a constant and continuous one, results in maintaining a flow from the water back to the tank, then to the pipe, then around the loop and back to the waterback. In other words, the series system positively circulates the loop (if the loop can be circulated at all) and in some cases will move the water around the loop, when otherwise the head might not be sufficient or the friction might be too great for a satisfactory flow to take place.

As a good example of this, the installation, shown in Fig. 57, is given, this is an actual installation, in which the water in the tank is heated by a water back during the summer and by a steam coil supplied with steam from the steam heating system during the winter. During the summer, when the water back is in operation, the hot water flows up into the tank T then through the loop and back to the water back through the check valve. This circulation is a series circulation, and is perfectly satisfactory, but in the winter time, when the water back is not in use and the water is heated by the steam coil, no circulation results. The conditions then are practically parallel circulation, as the water should start out from the tank, pass around the loop and as the water, coming through the supply, is heated water from the water back, while any water, which may get into the fixture branch as a result of a reverse flow in the return line, will come from the top of the hot water tank, where the hottest water is stored. Thus in neither case can cold water get into the fixture branch.

(To be continued.)

The Old Fashioned Way.

The young hopeful of four years had been a source of continual vexation and trouble all through the meal, and at its finish a woman friend turned to the child's mother and said:

"If your boy belonged to me I shouldn't stand so much of his nonsense at mealtimes. I should give him a thrashing."

"But," said the mother, "you can't spank the poor little fellow on a full stomach."

"No," said her friend, "but you can turn him over."—*"Pittsburg Chronicle Telegraph."*

Terrifying Thought.

It was a church yard. The morning sun shone brightly and the dew was still on the grass.

"Ah, this is the weather that makes things spring up," remarked a passerby casually to an old gentleman seated on a bench.

"Hush!" replied the old gentleman. "I've got three wives buried here."—"Reedy's Mirror."

QUESTIONS & ANSWERS

STEAM BOILER DOES NOT WORK RIGHT ON HEATING PLANT IN A CHURCH.

Editor "Domestic Engineering":—I have just installed new mains and returns on a steam heating system in a church, a layout of which is shown herewith. Can you tell me why the water leaves the boiler in this system, as soon as the gauge registers 1-lb. pressure. When water leaves the glass, the pop valve throws out water when pulled. This boiler was installed seven years ago, and it has acted the same way ever since. It was formerly connected to a piping system with a few inches water line, at the present time it has 16 inches water line. Before the installation of this boiler, an old round boiler was used on the old piping system, and the boiler held the water, but owing to the destruction of this boiler through lack of water, the present boiler was installed. The only reason I can see why this boiler loses the water at the

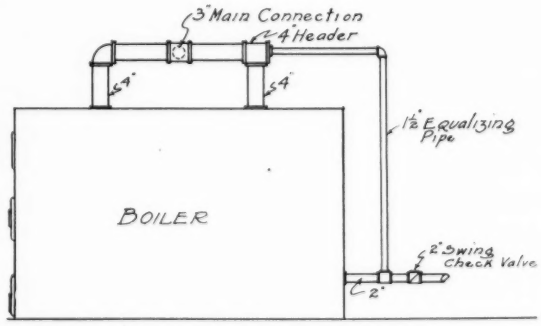


Fig. 1.

above pressure is this, that a water manifold, concealed above the fire chamber, is assembled with 1½-inch nipples, which I think are too small and probably overload the boiler, which should take care of 1,100 ft. of radiation. We have tried with some of the radiation shut off, but this did not give the desired result. We also have placed a check valve on the return, but obtained no relief therefrom. The bottom of the radiator openings are 16 inches above the water line.

Pennsylvania. F. D. C.

The circumstances and trouble reported in the above letter relating to an unsteady water line is a condition which has been discussed quite frequently in the columns of "Domestic Engineering."

Unstable water line; Water leaves the gauge glass; Water leaves the boiler; etc. These are the complaints, and while all of them are not due to exactly the same cause they are all in the same class, and the trouble noted by correspondent varies but slightly from that so frequently experienced by other steam fitters.

The sketch submitted is drawn in a combination of plan and elevation and shows a low pressure sectional steam boiler and piping system supplying nine radiators totalling 520 sq. ft. of surface. The boiler (as stated by foot note upon the sketch submitted), has a rated capacity of 875 sq. ft.

We do not illustrate the entire sketch as the most of the detail shown has practically no bearing upon the trouble experienced. The method of hooking up the boiler; that is, of connecting the flow and return pipes is shown by Fig. 1.

Before discussing the conditions which cause the trouble, we may say that correspondent is right in his contention that the boiler is too small for the work. The amount of radiation supplied (520 sq. ft.) would require a boiler of the size indicated, or slightly larger, under the most favorable circumstances, and for this particular job a boiler of 1,000 or 1,100 sq. ft. capacity is not too large.

The boiler in use is one of a type having a comparatively small water surface through which the steam bubbles rise and diffuse, and there is not sufficient depth of water over or above the heating surface of the boiler to allow of a quiet liberation of the steam in a volume sufficient to fill the radiators. The boiler has a very large percentage of direct or prime heating surface. When steam is raised rapidly, or the boiler forced quickly to any considerable pressure, there is such a disturbance of the shallow water above the heating surface that much of it is entrained with the steam and carried into the piping system. The nipples connecting the sections with the top header are relatively small and located close to the water line. When the boiler is steaming easily, and quietly, the steam passes through these nipples into the header without causing trouble. As soon as the water boils with increased activity more or less water is intrained with the steam and is carried first into the header and finally into the piping.

The reason that this trouble was not experienced with the old boiler was undoubtedly due to the fact that nearly all of the older types of boilers carried more water above the heating surface. They did not steam as rapidly as some boilers of more modern construction but were more steady under conditions of intermittent or hard firing. The evaporation of 5 or 6 pounds of water per pound of anthracite coal was, a few years ago, considered a fair steaming record. Later types of boilers have been increased in efficiency and the average evaporation is now 8 or 9 pounds of water per pound of coal. We mention this, as an experience of the late Mr. Babcock (a pioneer among boiler manufacturers), illustrates the result of conditions similar to those related by correspondent.

Mr. Babcock had been testing out a boiler and the test showed 17 pounds of water evaporated per pound of coal. Commenting upon the result of the test he said, "There was some doubt whether the apparatus ought to have been called a steam boiler or a steam pump, for I think had we pushed it a little harder we might have obtained an evaporation of 20 or more as easily as 17 pounds." Those conducting the test had of course been

weighing as condensation the entrained water carried over with the steam.

We wish to call attention to an evident misunderstanding of correspondent regarding the required height of main above the water line which has an important bearing upon the trouble experienced. He mentions the fact that the bottom of the radiator openings are 16 inches above the water line. This measurement has no significance as concerns the requirements. When planning the piping of a low pressure gravity steam job, with either

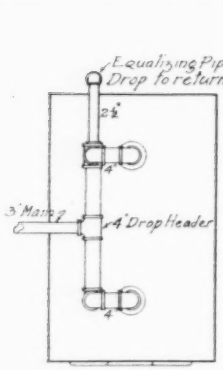


Fig. 2.

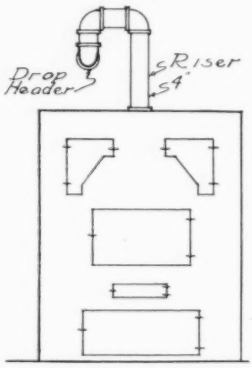


Fig. 3.

wet or dry returns, it is well to remember that any drop in pressure between that at the boiler and that at the end of main or dry return must be compensated for by a rise of water in the vertical pipe connecting the end of the main or dry return with the wet return pipe or return connection to boiler. When the drop in pressure is 1 ounce or less the distance between end of main and water line may be as little as 4 inches. For a 2-ounce or ⅛ of a pound drop 6 inches; 4 oz. or ¼ lb. drop 12 inches; or for a drop of ½ lb. 18 inches.

Allowing 4 inches from bottom of radiator tapping to the floor, 1 inch for the floor and 12 inches for the joists, without any further allowance for distance below joists to steam main, it would seem (if correspondent's figures are correct), that the mains must be flooded with water as soon as any pressure is developed at the boiler. If we have a correct understanding of the water line and distance between main and radiators the boiler should be lowered at least 18 or 20 inches.

It is possible that a drop header placed on the boiler, and also a larger equalizing pipe properly connected, will assist in overcoming the trouble. Fig. 2 shows a plan of this method and Fig. 3 an end elevation showing one riser and two elbows connecting to the drop header. This sketch illustrates the position of the header and the method of connecting the risers out of the boiler to it.

WILL THIS TWO-PIPE STEAM HEATING SYSTEM WORK RIGHT?

Editor "Domestic Engineering":—The accompanying sketch shows the layout of an ordinary two-pipe steam heating system. The supply valve is placed at the top connection of radiators, and a thermostatic valve is placed on the return end of each radiator. A quick vent air valve is placed on the end of return pipe, where drop to boiler is made. A swing check valve is placed in return line near boiler, and the boiler is to be controlled by an automatic damper regulator. Do you think such a system will be a success?

W. Va. A. P. C.

We illustrate by Fig. 1 the sketch submitted by correspondent. This sketch indicates the several points described in the letter and in reply to the question as to whether a job installed in this manner would work successfully, we answer, yes, provided the piping system is sized and installed in such a manner that the steam circulation is good and the return of the water of condensation is unobstructed.

We desire to qualify this answer by advising that the benefits ordinarily derived from the use of fractional valves and top connections to the radiators, and also the thermostatic trap at the return end of each radiator, cannot well be procured if the work is installed as indicated.

For example, the thermostatic trap or return line valve is intended for vacuum or vapor return line service; such as for use on a vacuum, vapor-vacuum, vapor or modulating system, and the fractional supply valve and top radiator connection are particularly adapted for use on such systems.

Correspondent should consider that when any one of the several types of heating systems mentioned above are used, it is required that some form of vacuum pump, separating air trap or similar device should be used at

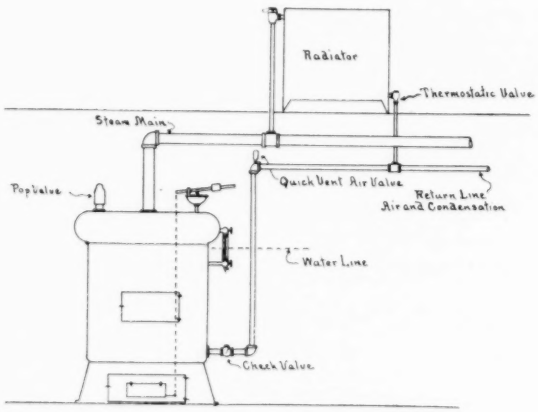


Fig. 1.

the end of the air and condension return line for the purpose of separating the air and condensation, the air to be expelled to the atmosphere and the condensation to be returned to the boiler.

Shocking.

An elderly lady of very prim and severe aspect was seated next a young couple, who were discussing the merits of their motor cars.

"What color is your body?" asked the young man of the girl at his side, meaning, of course, the body of her motor.

"Oh, mine is pink. What is yours?"

"Mine," replied the man, "is brown with wide yellow stripes."

This was too much for the old lady. Rising from the table, she exclaimed:

"When young people come to asking each other the color of their bodies at a dinner party, it is time I left the room."—"Tit-Bits."

Watts, Cal.—L. G. Bristol has opened a plumbing establishment at 120 Melvin Avenue.

Oklahoma City, Okla.—The Tom Dolan Heating Co. has been incorporated with a capital of $10,000.

LEGAL QUESTIONNAIRE

Do Small Repairs Revive Mechanics Lien? Can I Attach a Party's Right in Suit Against a Third Party? Is a Buyer Obliged to Take an "Over Shipment"?

By "The Judge"

Small Repairs do not Revive Mechanics Lien.

Editor "Domestic Engineering:"—A little over a year ago I finished a job of plumbing which was installed, following a verbal agreement, in a remodelled house to be for rent or sale purposes. However, the party moved into the house himself. While roughing in the job I received $50, and when job was finished, I sent in the bill for the entire job with credit of $50, which was satisfactory to the owner.

After waiting nearly two months I called him up and told him I wanted some money. His wife called at my office and gave me $20 on account. Since then I have been unable to collect from them. The owner excuses non-payment with a hard luck story.

On February 14, 1918, I went to the premises at the request of the owner and repacked a faucet, put new gasket in leaky union and tried to repair a broken bowl. I made no charge for this so that I could place a lien for the balance of the account which was owing to me for the work done a year ago. Am I in the right in doing this?

Michigan. F. W.

Answer:—There is not much question but that the work which you have done this month, all of it in the nature of repair work, is not of such a nature as will permit you to revive your mechanic's lien for work done under a contract a year ago.

The only doubt, in my mind, is that the legislature of your state may have passed a recent law, to which I have not access, which specifically gives you a right to claim a lien under the circumstances which you present. I do not believe that such a law has been passed, for it would be very different from the laws of other states on this subject and would be a radical departure from all previous law governing the points involved.

The statute of Michigan on this point, as I find it, is that you would have to file in the office of the register of deeds, in the county in which the real estate, house, building, structure or improvement to be charged with the lien is situated, a just and true statement or account of the demand due you, over and above all legal set-offs, etc.

This account must be verified by affidavit and must be "filed *within sixty days from the date on which the last of the materials shall have been furnished or the last of the labor shall have been performed by the person claiming the lien.* . ."

The question of whether the work, which you did in February of this year, is such part of the original contract that you can now claim a lien successfully, is one of fact. Sometimes, where there has been a delay in completing a contract, and an elevator is used for a considerable length of time, for instance, without any work being done on it, small parts attached or insignificant work done several months later have been sufficient to permit the workman to claim a lien successfully.

But it is easy to see, if you have stated all the facts, that the work you did this month is not really a part of the original contract. It was repair work, and had nothing to do with the contract you finished a year ago.

In a recent Massachusetts case the contractor furnished some elevators to an owner and did no work on them between November, 1913, and January, 1915. In January, 1915, the contractor did some work of comparatively slight money value and the jury found, as a fact, that it was a part of the original contract and was performed in good faith. The court ruled that the contractor had a right to his lien.

It follows that unless you can prove to the satisfaction of the court that your work in February, 1918, was part of the work contracted for a year earlier, you have no right to a lien.

Attaching Party's Rights in Suit Against Third Party.

Editor "Domestic Engineering":—I find myself with a considerable loss on my hands unless you can give me some encouragement on the following facts.

I did work for a man and secured a judgment against him. At the time I did the work I thought that he was sound financially, because of his family connections, but discovered, to my sorrow, that he is worthless, almost. I learned that he has brought a suit against a bank on a contract, but that the suit has never been tried out. Is there any way in which I can reach whatever is coming to him in that suit, from the bank, and apply it to my claim? H. L. D.

Answer:—Not long ago a very similar situation arose in your state and the party who was in your position was allowed to attach, by equitable process, the rights of the man who had brought the suit against the third party, and apply the proceeds to the settlement of his claim.

This branch of the law, on the equity side of the court, is trying to keep pace with progressive business conditions, and it is a comparatively new subject in the courts.

In the case which I have referred to, the court took the view that the right of the man, who had brought suit against the third party, was a vested right, although the value of it had not been judicially determined, and was such a property right that the party could have sold it or assigned it. Being that kind of a right, it could be

*Every Effort is made to the End that these Answers may be authoritative. However, we cannot assume any Responsibility because of the very Nature of the Service, which is rendered without a personal Interview.—Editor.

attached in a bill in equity to reach and apply, under the statutes of your state.

When the question was raised that the man, who had brought suit, might never recover anything, the court answered that while that might be true, its value might readily be ascertained "by sale appraisal, or by means within the ordinary procedure of the court."

The point you have raised may be of great benefit to other subscribers, for in this day of complicated business dealings and extensive credit risks, any advantage, which a creditor may have, is important to him. Adding to the list of possible means of securing payment is a boon which will be appreciated.

By all means place the case in the hands of an attorney.

Buyer Not Obliged to Take an "Over Shipment."

Editor "Domestic Engineering":—Will you please tell me what my rights are under the following facts:

I entered an order with a supply house for a large bill of goods, same to be delivered from time to time upon my advices, F. O. B. my city "less freight." The orders came along for a time, until the last instance, when I received notice from the railroad of the arrival of a shipment, describing the shipment as containing about twice the amount of fixtures, which I had ordered. The bill of lading read that the shipment was consigned to the supply house and the latter had endorsed the bill "Deliver to order of D. J. (myself.)"

Of course, the freight charges were about double what they should have been on my order, and I refused to accept the consignment or pay the freight. Shortly afterwards there was a fire in the freight shed and my fixtures were destroyed. Now the supply house wants me to pay for the goods. D. J.

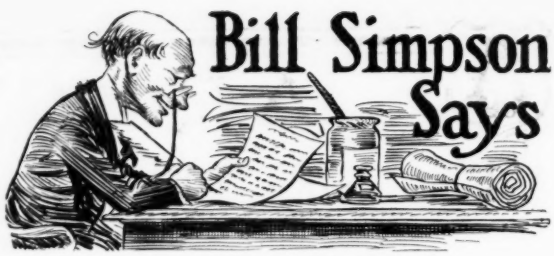
Answer:—As the supply house forwarded the fixtures to your city on a bill of lading running to itself as consignee and as their contract with you was F. O. B. your city, that would indicate an intention to reserve to itself the title to the fixtures until your order had been separated from the balance of the shipment and the same had been delivered to you.

It is to be noted that the bill of lading did not state how much of the shipment was to be delivered to you. In this connection the following provisions of the Sales Act, in force in your state, are of importance:

"Where the seller delivers to the buyer a quantity of goods larger than he contracted to sell, the buyer may accept the goods included in the contract and reject the rest, or he may reject the whole."

"Where the seller delivers to the buyer the goods, which he contracted to sell, mixed with goods of a different description not included in the contract, the buyer may accept the goods, which are in accordance with the contract, and reject the rest, or he may reject the whole."

With this provision of the statutory law in mind, it is evident that you were acting within your rights when you refused to accept the shipment, which included goods which you had not ordered. The only qualification which I would make, and one which does not apply to the facts as you state them, is, that if the shipment was only very slightly larger than your order, there might be a question whether you would not have to take them. The degree of excess over your order, necessary to release you from accepting the goods is a question of fact in each case, depending somewhat on the nature of the goods shipped. For instance, a pound or two over in a large shipment of salt, would probably not allow you to refuse acceptance.



(With Apologies to K. C. B.)

I ate supper late nite in Jonses
* * *
Fine Restaurant up in Buffalo. I
* * *
Had a seet near the lady Cashier,
* * *
And I notist that
* * *
She asked everybody
* * *
As they went out: "Will you Buy a
* * *
Thrift Stamp, Pleeze?" She had such
* * *
A durn nice way about her that most
* * *
All the men bought—and some of the
* * *
Women. When I came
* * *
Back to Bingville
* * *
I happend to meat Jeff Lamb,
* * *
propryeter of the Bingville
* * *
Bum Resturent. I sed to Jeff:
* * *
Do you sell many Thrift Stamps?
* * *
Up at the Bum Resturent, Jeff?"
* * *
And he snorted and replied:
* * *
"Naw, Bill, the pepul won't buy them."
* * *
Ain't it the truth,
* * *
I thought to myself,
* * *
That the fellow
* * *
That gets the business
* * *
Is usually the one who tells the pepul
* * *
What he is selling—and does it in
* * *
Such a nice way,
* * *
And so persistently—
* * *
That they just naturally buy.
* * *
A lot of plummers are
* * *
Like Jeff Lamb,—
* * *
They think the pepul won't buy high-class
* * *
Bathroom outfits,
* * *
Water-supply outfits, and so forth,
* * *
But the truth of the matter is
* * *
They don't know
* * *
Becuz they have never
* * *
Tried to sell them to the pepul.

The DAY BOOK *of the* BON TON DE LUX PLUMBING & HEATING CO.

Hank Olson and Jerry Dolan Formed a Partnership and Opened a Plumbing and Heating Business January 1, 1918 —Dolan Has Decided to Keep a Day Book, in Which He Records the Interesting Happenings of the Day

Continued from Page 379 in the March 9th Issue.

March 5, 1918.

Well, we got the flivver running now, and a fellow sure makes some time getting around with it. We had a little box built on the back end of it, so we can haul a few fittings or a lavatory or a sink or something like that. Me and Hank both learned how to run it.

March 6, 1918.

That girl in the office pulled a hot one today. She got an order to pack a faucet down at O'Brien's house on Franklin Terrace, and Lally gets in from the job that he was on and of course I didn't know that he was going to get through, and Hank didn't know it, either, and so he comes into the shop and there was no orders for him, and the girl gives him this job for 933 Franklin Terrace. Well, he didn't know how to get to Franklin Terrace, but it sounded like Lowry Hill to him. So he blows out Hennepin Avenue to Franklin, gets off the car and drifts around awhile, and he can't find any 933 along there on West Franklin, and so he calls up the shop, and the girl don't know any more about it than he does and so then he beats it out to Lake Street and over to Chicago Avenue and back to East Franklin, thinking that maybe it was East Franklin instead of West Franklin and he spends some more time at better than a cent a minute looking at the house numbers along there and, of course, he can't find any O'Brien at 933. There's a Hansen at 931 and a Petersen at 935, but 933 ain't in the deck. But finally he gets a touch of human intelligence and was lucky enough to bump into a cop that goes along that way every Wednesday, and he stalled around awhile but finally pulled out his little book and found Franklin Terrace was down close to the Franklin Avenue bridge, and so he hops on a car and gets down there and puts a fuller gasket in the sink bibb and gets back to the shop in time to ring in for the day. His charge sheet showed: "One fuller gasket, car fare 20 cents, 5½ hours time." Well, I got to add a couple of cigars to that because I got to go over and see Flannigan's bookkeeper about this.

March 7, 1918.

That bookkeeper was mighty encouraging. He says the last cigar was a good one and if this is as good it will be all right. Then he says, "What little thing is troubling you today?" Well, I hadn't told him that anything was troubling me, but he seemed to know that there was something rotten in Denmark, and so I told him about Squint-eyed Lally and the faucet, and he laughs like it was a good joke, and then he says that me and Hank is the goats in the deal, and that the only thing to do is to charge O'Brien about a dollar for repairing that faucet and then find some picture house, where they are showing Charlie Chaplin in his latest and go in and forget it. It's all right for him to talk like that, but maybe he is right at that.

March 8, 1918.

Well, we got another one today that was a pippin. This morning a man called up and said that there was a gas leak in the parlor at his house, and he wanted it fixed in a hurry, so I gave Windy Friburg the ticket and told him to beat it up there and do a good job, and I gave him another job, a sink waste to clean out, to do when he got through with the gas job. In about two hours, in comes a man that might have been the wild man of Borneo, if I didn't know that he was putting in the winter at Baraboo, Wisconsin. Finally, he gets most of the steam out of his system, and I sent Mame, the bookkeeper, down to the postoffice for a dime's worth of stamps, and after a few more preliminary remarks, this is what he tells me: "Your plumber came out to fix that gas leak; your plumber came into the parlor and he didn't remove his rubbers; your plumber remarked that he was glad to see that we had a player piano; your plumber looked over the records in the cabinet, inserted one in the piano; located part of a cigar in his vest pocket, inserted that in his mouth, lit up and proceeded to give us a concert; I came out of the trance that I was in and asked him how about the gas fixture; then it came to your plumber that he was there to fix a gas fixture; without another word he walked over to the center of the room, sniffed a couple of times, remarked that there seemed to be a gas leak, stepped out in the hall and removed his rubbers which had had plenty of time in which to dry off, came back, stepped on one of the parlor chairs and from that to the table close to the center of the room and proceeded to become better acquainted with that gas fixture. Once more, I came to life, ordered him down from the table, brought up a step ladder from the basement and he mounted that. A few minutes work with his wrench and the job was done. Now, all that I want to know is: How much do I owe you for that job?" I told him that it looked like about Two Dollars although I wouldn't know until the plumber turned in his time card. "Well," he says, "I am sending the parlor rug to have it cleaned and the table top is on its way to the repair shop. They may be able to plane it down so that the marks of your plumber's spiked shoes won't show, but it may be possible they will have to put on a new top. Also, the wife was just about ready for a rest cure under a trained specialist when I left, and if it turns out that this is necessary she will have to have it. I will add it all up and bring you the bill, and if it is less than the Two Dollars, which you just mentioned, I will gladly pay

(Continued on Page 434.)

SANITARY ENGINEERS *of* INDIANA *in* ANNUAL CONVENTION *at* SOUTH BEND

Discussions on Better Business Methods Leading Feature of Three-Day Meeting, Called "Efficiency Convention"—Wm. J. Woolley Re-Elected President

THE twenty-second annual convention of the Indiana Society of Sanitary Engineers was held March 11th, 12th and 13th at the Elks' Home, South Bend, Ind., with headquarters at the Oliver Hotel. Representative men of the society, many of them accompanied by their wives and coming from all sections of the state were in attendance.

Monday Afternoon Session.

The convention was called to order at 1:30 p. m., by President Wm. J. Woolley, and he was followed by the Rev. C. A. Lippincott, who delivered the invocation.

Thomas Williams, president of the South Bend Socity of Sanitary Engineers, welcomed the parent society to the city on behalf of his local. Mayor Frank Carson, of South Bend, welcomed the delegates on behalf of the city. In his address he stated that the time was ripe for recognition of the sanitary engineers by the Indiana State Board of Health and that they should be officially represented on the board. He referred to the need of more sanitary legislation in the state and paid tribute to the efforts of the sanitary engineering craft in striving to promote more laws relative to sanitary plumbing and sewage disposal. The mayor was heartily applauded when he said that "South Bend is now a good town for sanitary engineers, and it used to be a good one for plumbers."

Charles C. Pyke, of Lafayette, responded ably to Mayor Carson's welcome.

"In the face of an unreasonable popular prejudice," said Mr. Pyke, "the plumbing fraternity has stood up through the years for principles of right. We have always stood for what is best for our communities.

"In our efforts to secure better sanitary laws for the state we have often been charged with having ulterior motives. People forget—some of them do—that it was our craft that educated the public away from the old hopper closet, the zinc bath tub, the old iron sink. The craft has accomplished a great work in promoting and conserving health through superior plumbing.

"I am prouder today of my connection with my craft, knowing its achievements, than I am of my connection with my church or the Y. M. C. A., worthy though they are."

President Woolley's Report.

President Woolley then read his annual report in which he referred to the year of 1917 as the most extraordinary in the history of the organization, emphasizing the fact that the merchant plumber has thrived in spite of some of the depressing conditions precipitated by the war.

The report follows herewith in part:

That our Society has passed out of the experimental stage and is now a thorough business organization, developing those things that are of mutual benefit to the trade and essential to its advancement, is best proven by a statement recently handed out by one of our large Mercantile Agencies, from which I quote the following:

"The value of educational work in business organizations is best manifested by the great decrease of failures among plumbing contractors during the year 1917. Owing to the extraordinary educational campaigns that have been carried on by the plumbers' organization, failures have decreased more than 40 per cent, and during the year of 1917 the small number of failures, that did occur, involved less money than any other artisan trade."

We have just completed the second year of our new organization, and, while we have been banded together for twenty-two successive years, I believe that this has been the most extraordinary year in the history of our craft.

It has been a good year from a financial standpoint. Our members have been more careful in their estimating and billing of work. The market has been decidedly in their favor, as any advancing market always is to distributors. This has been a particularly good year for the merchant plumber, for his stock has increased in value with leaps and bounds, netting him handsome profits. However, a reverse action is to set in at some future time. Just when, no one seems to be able to determine, but allow me to offer this suggestion: Be on your guard.

In making the above statement, I do not want to infer that a sanitary engineer should not purchase up to his requirements, but I do want to impress you with the importance of stopping at that point.

I believe that I am safe in advising you that markets will not rise. In my opinion, they have come to a point where a stand will be maintained, until such times as conditions will again adjust themselves. However, I am a firm believer in the fact that prices will never toboggan again to the same level they occupied prior to the war. I base this decision upon several well known facts. First, people have become accustomed to higher prices, and the customs of people are easily maintained; second, I am convinced that the income tax law has been a great source of education to the business man and has pointed out to him, in a most concrete manner, his exact standing. In fact, it has brought him to realize many important business questions he has heretofore ignored, or looked upon too lightly.

On the other hand, building operations have been diminished to a great degree during the past two years, and from present indications will be stifled this year. This stagnation only means that at some time in the future the demand for buildings will overshadow the supply, and when this condition has been reached, a building boom, unprecedented in this country, will take place. With this great demand for labor and building products, prices will have a tendency to go higher, if any change is made at all; therefore, it is absolutely safe for one to advise his customers that delayed improvements will simply curtail their own incomes and comforts, for prices cannot go down.

It also occurs to me that we should not be unmindful of the great opportunities offered our craft in the promotion of a tremendous heating business this year, owing to the exceptionally large advance in the price of coal. With the coal markets as they now stand, it is a simple task to convince a customer in actual figures the economy of a modern heating equipment, and it rests with you men and our members, who are absent, to take advantage of this one opportunity of building business, during this building depression.

Before passing, I want to take this opportunity of paying tribute to the members of our ranks who have joined the colors. They have considered it their duty to go across for the protection and welfare of humanity, and we honor them for it. However, we, who are so situated that we cannot assist our country in that way, have a great duty to perform at home. It falls upon us to preserve the health and welfare of those that remain. It becomes our duty to assist in raising the necessary finances in the various branches in order to conduct the great war machine our government has built, and those of us failing to contribute liberally to these various causes could not be looked upon otherwise than as unpatriotic. However, I am happy to say in this connection that the members of our Society have again proven themselves loyal, for every available cent of our state and local societies were dumped into the war funds of Uncle Sam, and our members throughout the state loyally gave their physical and financial assistance in making the campaigns a success in their various cities.

The Secretary-Treasurer's Report.

Secretary-Treasurer Paul J. Dolan read his report for the year, showing a balance of $1,628.75 on hand, March 11, 1918.

Articles of Incorporation.

The reading of new and revised articles of incorporation for the Indiana Society of Sanitary Engineers was the next order of business. These were all adopted with but few changes.

Tuesday Morning Session.

President Woolley again called the convention to order at 10 a. m. He was followed by Claude M. McElwaine, chairman of the bookkeeping committee, who read a report of the findings of that body relative to formulating a system of accounting and cost-keeping for the use of members of the society.

President L. McNamara, of the National Association of Master Plumbers, was then introduced to the convention. He was greeted with hearty applause. His address was brief and was merely a preliminary to his principal address in the afternoon. He outlined the program of education which the National is carrying forward and told of the interest which members are showing in its ultimate success.

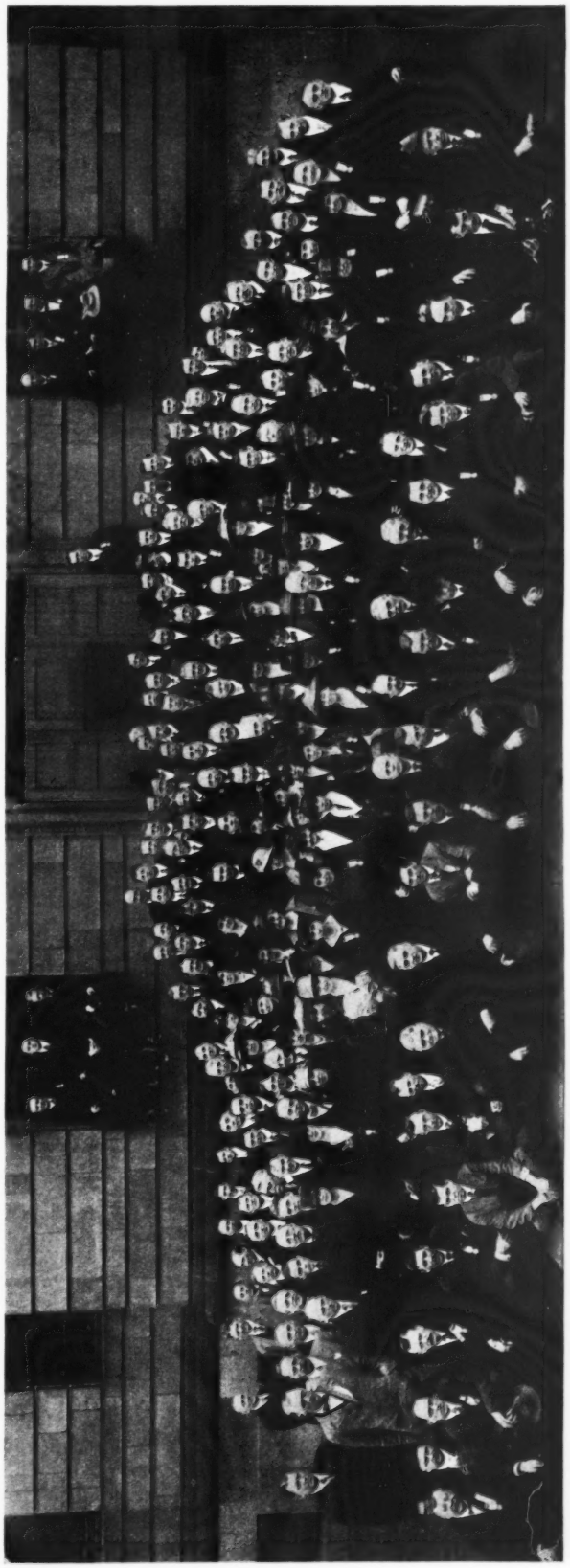
President Woolley delivered an illustrated talk on Better Business Methods, which evoked profitable discussion. The points of interest, which were taken up, were: Overhead expense, quotations, order blanks, inventory, post and retail book, telephone record pad, voucher slip and voucher checks, job order and charge book, cash and quantity discount, delivery and material order, call slip or return material slip, premise inspection card, workman's daily time sheet, job receipt book or spyglass, etc.

President Woolley said that he found that the offering of a discount to customers for prompt payment proved advantageous. "You can charge a customer 90c an hour and he will kick. Charge him $1.10 an hour and give him a 10 per cent discount and he will think he is getting something for nothing. I think the policy of discounts in business is a good practice."

In discussing the merits of a job order and charge book, Mr. Woolley said: "This is largely a checking proposition. All the items of material entering into a repair job are enumerated. The journeyman checks off the particular items used on the job and the number required. Some master plumbers, who depend upon the memory of the journeyman, lose hundreds of dollars annually in material unaccounted for, lost or stolen."

Tuesday Afternoon Session.

Following the opening of the afternoon session, President Woolley continued his illustrated talk on Profitable Business Methods for the Master Plumber, methods which the society is formulating and recommending to its



Delegates and Guests at the Twenty-Second Annual Convention of the Indiana Society of Sanitary Engineers, Held at South Bend, Ind., March 11, 12 and 13, 1918.

members. Criticism and suggestions regarding the different forms in bookkeeping, etc., were made and discussed during the talk.

During a discussion upon the itemized and the non-itemized bill, E. J. Hanley, chairman of the Educational Committee of the National Association, contended that a bill "to rendering professional services," was a better form of procedure. He said he was in favor of detailing services rendered, but not the materials used on the job

Another delegate held that the itemized bill was preferable in view of the fact that, when a customer has a boiler repaired, which may possibly cost him several hundred dollars, he does not feel kindly toward a bill made out to "services rendered." "He wants to know what he is paying for," said the delegate. However, in the case of bills ranging from five to ten dollars, the non-itemized bill may be all right.

E. J. Hanley aroused marked attention in his address on the Need of Up-to-date Methods in the Plumbing Business. He said that the Educational Committee of the National Association had been forcibly struck with the fact that the average plumber can never become a bookkeeper, and that the committee is constantly recommending to the members, the advantage of employing a bookkeeper. He said that selling, estimating and bookkeeping were three of the big factors that enter into the successful operation of a plumbing shop. He also pointed out that salesmanship was the most vital thing for the plumber to remember during the war period. "It is up to you to go out and sell your service now, or your business is going to be minus for 1918," he declared. "The farmers, the mechanics, and even the clerks in the stores are making more money today than ever before. Everybody is getting more for the services they render. There is money, lots of it. You can get some of it by going after those who need your particular service. Salesmanship will do it. Get out your catalogs and booklets showing superior plumbing and modern bathrooms. Show the man, who is buying an automobile for his family, that a new bathtub or closet is also in order."

E. J. Hanley, of St. Louis, Chairman of the Educational Committee of the N. A. M. P.; L. McNamara, St. Louis, President of the National Association of Master Plumbers; C. D. Brownell, Champaign, Ill., President of Illinois Master Plumbers' Association.—From "Domestic Engineering" Photo.

Plans for National Convention.

Mr. Hanley said that the coming convention of the National Association of Master Plumbers, which is to be held at St. Louis in June, would be the greatest from an educational standpoint of any ever held in the history of the organization. The exhibits this year, he believed, would eclipse in scope those of former years. He announced that addresses would be delivered by prominent executives in the manufacturing world, and by men of national reputation in the realm of banking. The selling talks of the men, representing the manufacturing interests, he said, would be of direct benefit to the plumber who attends the convention. These talks would give him the fine points in salesmanship from the man who makes the goods—that he (the plumber) installs.

President McNamara's Address.

President L. McNamara, of the National Association, was the next speaker. He said in his opening remarks that Mr. Hanley had so thoroughly entered into the different phases of the educational work of the National organization, that he felt there was very little to be added. Mr. McNamara reinforced what Mr. Hanley had said relative to the coming national convention. "It will be the biggest we have had in many years, and it will contain the greatest exhibit we have ever staged."

He urged the necessity and mutual advantage of co-operation among competitors. "The old fossilized idea of grinding down the other fellow cannot stand the test of progress," said Mr. McNamara. "The constructive way is to help your competitor by showing him that better business methods will benefit him as well as you. Try to make a better business man of him, and you will make him a better competitor."

Wednesday Morning Session.

The convention opened at 10 o'clock with the reading of an essay by M. F. Noll, of Fort Wayne. The educational value of conventions was emphasized, and the co-operative influence of trade papers in business building was enlarged upon. The instructive power of such publications as "Domestic Engineering" and the "Plumbers' Trade Journal" was mentioned as being of vital importance in conjunction with the educational work of the state conventions of the Indiana Sanitary Engineers. The growing need of public comfort stations was also emphasized.

President Woolley opened an interesting discussion upon the value of show-room and display window advertising. Various delegates told of their success in this form of advertising, laying stress upon the displaying of accessories in this connection. Mr. Woolley said that he had found that the advertising of bathroom accessories in the newspapers, particularly before the holidays, was a good business policy. He pointed out that the standards of the plumbing business could be elevated in every community by superior display window and show-room exhibits.

C. B. Nash, manager of the publicity department of the Standard Sanitary Mfg. Co., of Pittsburgh, delivered an instructive address on salesmanship, show-rooms and advertising for the master plumber. He said that these three factors in selling could be linked together and considered as one. He urged the necessity of making the most of the present facilities for advertising before using the newspapers as a medium. He mentioned the co-operative assistance, which manufacturers are always ready to render to the trade in the preparation of advertising copy for the local newspapers. "The manufacturers will give you all the ideas you want for boosting sanitary enamel-ware in your city," said Mr. Nash.

Resolutions Adopted.

In the report of the committee on resolutions, the following resolutions were adopted:

"That the Society heartily endorse the co-operative movement launched by the Confederated Supply Associations and the National Association of Master Plumbers relative to the bettering of trade conditions during the war.

"That the Society adopt the entire proposed bookkeeping system for the use of its members and which

was formulated by a special committte on bookkeeping

"That the Society endorse the 'America First,' slogan in the prosecution of the war.

"That a rising vote of thanks be given to National President L. McNamara and E. J. Hanley for their attendance at the convention, and also to President Brownell, of the Illinois Master Plumbers' Association."

Votes of thanks were likewise accorded to the South Bend society for its splendid reception of the visiting delegates, and to the ladies' auxiliary, the Mayor, the Rev. Lippincott and the trade press.

Wednesday Afternoon Session.

James T. Haviland, of Illinois, was the first speaker at the afternoon session. He addressed the convention on the advantages of liability insurance.

C. D. Brownell, president of the Illinois Master Plumbers' Association, addressed the Society upon the question of minimum rates in liability insurance, recommending the advantages of a mutual company.

Window and Show-Room Contest.

The committee of judges appointed to award silver trophies to members maintaining the best looking display windows and show-rooms, reported their findings, after examining many pictures which were commendable. Judges Geo. Wood, western manager of "Plumbers' Trade Journal," and O. T. Carson, secretary of "Domestic Engineering," awarded the trophies—silver loving cups—to Bachmann Bros., Laporte, for the best show-room, and Wm. Whitehead & Sons, of Logansport, for the most attractive window display.

In the membership contest, W. S. Lilliard, of Peru, was awarded a check covering his convention expenses for securing the most members during the year.

Election of Officers.

Under the order of new business the following officers were elected for the ensuing year:

President, Wm. J. Woolley, Evansville; vice-president, Edward Kanney, Laporte; secretary-treasurer, J. W. Holland, Logansport; sergeant-at-arms, R. Ruston, Evansville. Directors: C. C. Pyke, Lafayette; Claude McElwaine, Indianapolis; J. M. Freitag, Terre Haute, and Thos. Williams, South Bend.

Delegates to the national convention: Chas. Maloney, of Gary, and Edward Kanney, of Laporte.

A rising vote of thanks was accorded Paul Dolan, of Laporte, the retiring secretary-treasurer, for his very efficient services during the year.

A testimonial in the form of a pair of gold, diamond studded cuff buttons was presented to President Woolley as a token of the Society's appreciation of his excellent work on behalf of the organization during the past year.

Terre Haute was selected as the 1919 convention city of the Society.

Entertainment Features.

The South Bend local society lived up right royally to the old axiom that "all work and no play makes Jack a dull boy." Its members were on the alert every minute to insure a joyous time for everybody. The officers of the local, who worked overtime, as it were, to see that the entertainment program went through without a hitch, were: President Thomas Williams, Vice-president John Lungstrum, Corresponding Secretary John Kestler, Financial Secretary Thos. McGrath and Treasurer Fred Futter, assisted by members.

On Monday, at 1:30 p. m. a reception was given to visiting delegates and their ladies at convention headquarters. At 2:30 p. m. a theatre party was arranged for the ladies, followed by light refreshments.

Monday evening a vaudeville performance was enjoyed by the delegates, their ladies and other guests, at the Orpheum theater. This was followed by dancing in the grand ball room of the Oliver Hotel.

On Tuesday at 10 a. m. the ladies went forth on a shopping tour, which was followed by an automobile trip to points of interest around the city, at 2:30 p. m. At 5:00 p. m. the delegates were the guests of the South Bend local on an extended auto tour of the city.

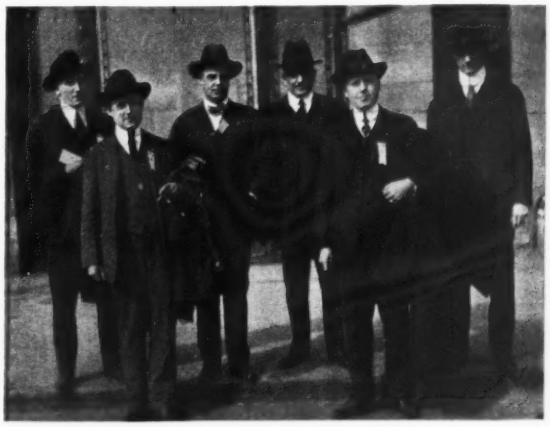
At 7:30 p. m. the annual banquet of the society was held at the Oliver Hotel. Nearly three hundred persons, including delegates, ladies and other guests, attended this event, which was followed by dancing. On Wednesday at 1:00 p. m. a luncheon was given at the Oliver Hotel in honor of the ladies.

Supplymen in Attendance.

The following representatives of the supply fraternity were present:

F. A. Lemke, secretary and treasurer of the Humphrey Co., Kalamazoo, Mich.

C. W. Rockstroh, of the Humphrey Co., Kalamazoo.



L. R. Mendelson, President of the Hotstream Heater Co., Cleveland; Roy Scheffel, of the Burnett-Larsh Mfg. Co., Dayton, O.; D. P. Davenport, of the Van Arnam Mfg. Co., Fort Wayne, Ind.; Geo. B. Barron, of the Compound Injector & Specialty Co., Chicago; L. Ray Lenich, of Union Sanitary Supply, Union City, Ind., and E. G. Laisy, of the Schild Specialty Co., Cleveland.—From "Domestic Engineering" Photo.

George B. Barron, of the Compound Injector & Specialty Co., Chicago.

C. B. Nash, manager, promotion department, Standard Sanitary Mfg. Co., Pittsburgh.

L. R. Mendelson, president of the Hotstream Heater Co., Cleveland, O.

Sy Martin, of the H. P. Martin & Sons Co., Owensboro, Ky.

L. Ray Lenich, of the Union Sanitary Supply, Union City, Ind.

D. P. Davenport, of the Van Arnam Mfg. Co., Fort Wayne, Ind.

Roy Scheffel, of Burnett-Larsh Mfg. Co., Dayton, O.

E. G. Laisy, of the Schild Specialty Co., Cleveland, O.

William J. Ray, Jr., of American Radiator Co., Chicago.

C. C. Shoupe, of the L. Wolff Mfg. Co., South Bend, Ind.

R. B. Duncan, of the Baker Specialty Co., Logansport, Ind.

O. B. Klingerman, of the Flint & Walling Mfg. Co., Kendallville, Ind.

F. W. Long and S. A. Winchell, of the South Bend Supply Co., South Bend, Ind.

F. W. Wren, of the Warren-Webster Co., Camden, N. J.

MISSOURI MASTER PLUMBERS *in* ANNUAL CONVENTION *at* KANSAS CITY

Trade Problems Discussed by Men Prominent in National and State Organizations—A. A. Zertanna Re-Elected President

THE Missouri Master Plumbers' Association held its annual convention in Kansas City, Mo., on Monday and Tuesday, March 11th and 12th, with headquarters at the Coates House. A large number of delegates were present from all sections of the state, every local association being represented.

Opening Session.

State President A. A. Zertanna, called the convention to order Monday morning and introduced E. W. Koch, secretary of the Kansas City Fire and Water Board, who welcomed the city's guests on behalf of the mayor and extended to them all the hospitality, courtesy and liberties of Kansas City, "The Heart of America."

The response was delivered by J. P. Cunningham, president of the Kansas City Association, who assured him that the Missouri master plumbers would show their appreciation of Kansas City by leaving it in a better condition than when they came.

National President L. McNamara was next introduced and spoke of the "Need of Educational Work and Co-operation," within the ranks of the association.

J. Sheehan, past national president, and a member of the Publicity Committee of the National Association, next spoke and gave each member an urgent invitation to attend the coming National convention, which is to be held in St. Louis on June 4th, 5th and 6th, and he assured them that this will be the greatest and best National convention ever held.

Following Mr. Sheehan, Past National President E. D. Hornbrook gave a very interesting talk on the work at the cantonment at Camp Funston, and told how they had built a city on the Kansas plains in the short period of less than six months, a city that was fully equipped in a sanitary way to give fresh, pure water and dispose of the sewage of over 50,000 men.

Mr. Hornbrook also spoke of the substantial quality of goods, which the government has had installed. He also referred to some of the difficulties encountered in securing them. He touched on the subject of the journeyman of today and advised the master plumbers to help educate them and make them a credit to the shop they represent.

A. P. Elder, past president of the Kansas State Association of Master Plumbers and at the present time postmaster of Ottawa, Kan., spoke briefly, but to the point. He said that he noted with pride that the United States Government's Official Bulletin is publishing the statistics of the present war as compared with the recent war with Spain and that the deaths in camp at the present date are only eight to one thousand as compared with twenty-one to a thousand at that time, and the government attributes this to the sanitary conditions as found in the modern cantonments.

After a brief talk by C. W. Burnap, president of the Kansas Master Plumbers' Association, the following committees were appointed:

Credentials: L. Fink, St. Louis; R. Jackson, St. Joseph; J. M. McCullough, Webb City.

Resolutions: C. Groeschel, St. Louis; Thos. Kierns, Jefferson City; J. P. Cunningham, Kansas City.

Auditing: N. J. Seibel, Jr., St. Louis; H. B. Schulte, Joplin; J. B. Smith, Springfield.

Monday Afternoon Session.

In his annual report President A. A. Zertanna told in detail of the work of the State Association during the past year. He mentioned the fact that there is not one member delinquent in his dues. He spoke of the loss of a number of the younger members on account of the war and called attention to the comparatively few young faces at the meeting. He also spoke of the needs of the State Association and suggested different ways in which members could help their successors.

F. W. Marx, chairman of the Business Management Committee, submitted a report that was interesting in every detail. He said that his committee had adopted the slogan "Make More Comforts in the Home and Aid in the Security of the Man Power of Our Country," asking every man to adopt the same slogan and live up to it. He referred to the advantage of having intelligent journeymen and impressed on the members the importance of helping to educate them along business lines. Not only will they make intelligent representatives for their present employers, but also be good and useful competitors in the future. He also spoke of the income tax and called attention to the importance of knowing how and where you stand financially.

E. J. Hanley, Chairman of the National Educational Committee; L. McNamara, President of the National Association of Master Plumbers; National Past Presidents Jeremiah Sheehan and E. D. Hornbrook.—From "Domestic Engineering" Photo, taken at Missouri Master Plumbers' Convention.

E. J. Hanley, chairman of the National Educational Committee, addressed the convention on the importance of conducting business on the right business principles.

He made some very helpful suggestions. Speaking of the value of co-operation in business he advised the members to get together with other business men in their locality and exchange ideas with them. He spoke of the advantages and helps obtained from trade papers and advised his hearers to pay more attention to the advertisements contained in them.

He dwelt on the importance of salesmanship, and advocated a system, whereby each man sent on a repair job will not only make a report of the work done, but also report fully on conditions of fixtures in use. In that way the master plumber will have information as to any possible opportunity for making a sale of a new fixture, etc.

Upon a standing vote it was decided unanimously to give this suggestion a thorough trial.

Following Mr. Hanley, National President L. McNamara made a short address, again calling the members' attention to the importance and necessity of co-operation.

Among other things President McNamara said: "Don't figure any man is no good and hopeless. Take him in and make a good man of him. Protect the cut-price plumber against himself. He is his own worst enemy in his methods of doing business. A reliable plumber always has enough work. Sincerity wins every time."

At this point a telegram was received announcing the death of Mrs. John Trainor, at Baltimore, Md. A telegram expressing the sympathy of the association was at once sent to her husband, John Trainor, for many years one of the directors of the National Association of Master Plumbers.

The afternoon session ended with a short, crisp talk by Ed Draper, secretary of the Kansas Master Plumbers' Association, that might well have been entitled "Love Thy Competitor as Thyself," in which he expressed in plain language his opinion of the master plumber, who, because he thinks himself successful, looks down on, and snubs his less fortunate competitors.

Tuesday Morning Session.

Tuesday morning's session was devoted entirely to speech-making.

Prof. J. T. McCaustland, dean of the School of Engineering, of the University of Missouri, read a very interesting paper on "Rural and Small Town Sanitation," in which he called attention to the urgent need of fresh water supply systems and sewage disposal systems for country homes. He also called attention to the fact that in the country and small towns cases of typhoid fever alone, average 450 to every 100,000, of which number 10 per cent cause death. He said that with proper sanitary conditions and pure fresh water, this dreaded disease could be entirely eliminated.

At the close of his reading, several members took the floor to ask questions, and the morning session closed with a general discussion of topics brought up by Prof. McCaustland.

Election of Officers.

At the afternoon session reports were heard from the different officers and standing committees, and the following officers were elected for the coming year:

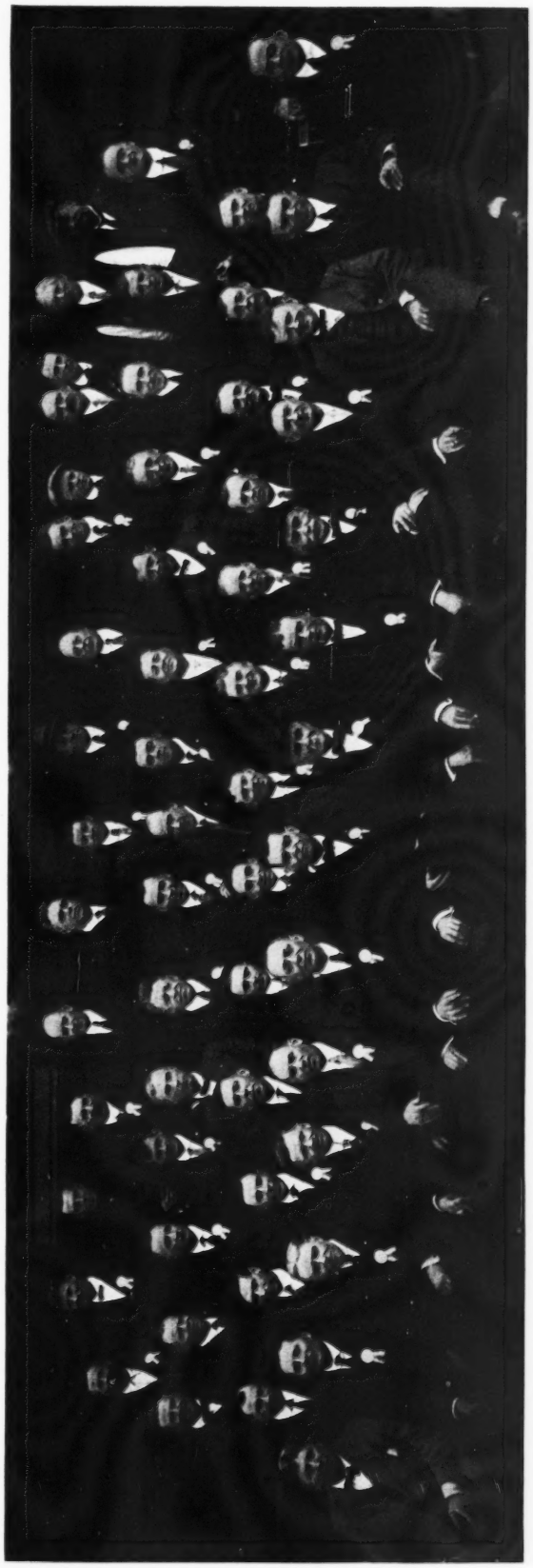
President, A. A. Zertanna, of St. Louis, for the fourth term.

First vice-president, C. L. Kennedy, of St. Joseph, Mo.

Second vice-president, Carl Smith, of Kansas City, Mo.

Treasurer, J. P. Carroll, of St. Louis, for the nineteenth term.

Secretary, C. L. Smith, of Kansas City, for the eighth term.



Delegates Attending the Annual Convention of the Missouri State Association of Master Plumbers, Held at Kansas City, Mo., March 11 and 12, 1918.

MAINE MASTER PLUMBERS' ANNUAL MEETING.

Held at Portland, Me., March 6th and 7th. A Successful Event in Every Respect.

Nearly one hundred members of the Maine State Association of Master Plumbers gathered at Portland, Me., on Wednesday and Thursday, March 6th and 7th, for the annual convention and election of officers. Headquarters were established at the Falmouth Hotel.

Mayor Charles B. Clarke, of Portland, delivered an address of welcome at the opening session of the convention on Wednesday, to which President Christian Madsen responded. James S. Cassedy, of Cambridge, Mass., former national president and now a member of the board of directors of the National Association of Master Plumbers, was present as the representative of National President L. McNamara, of St. Louis, Mo., and he also made a stirring address on the value of co-operation.

After the noon luncheon the members devoted themselves to discussing matters of business and trade interest, and in the evening they were entertained at a local theater.

William A. Bradford, of Quincy, Mass., former president of the Massachusetts association, gave an illustrated lecture on the subject of "Safety Appliances for Range Boilers," at the forenoon session on Thursday, which was followed with close attention by the Maine plumbers Mr. Bradford has made a special study of this subject, and his talk was of more than usual interest.

Officers were elected by the convention as follows:

President, Christian Madsen, of Portland; vice-president, A. P. Goodhue, of Belfast; secretary, John E. Donovan, of Winthrop, and treasurer, David A. Calhoun, of Portland.

After a tour of inspection of Portland's million-dollar city hall building, considered one of the most modern structures of its kind in New England, the delegates were guests of the Portland Master Plumbers' Association at dinner.

As the closing feature of the convention Percival P. Baxter, of Portland, a member of the state legislature, gave a talk on the Water Power of Maine. Mr. Baxter compared the cost of coal with the cost of water power to the advantage of the latter and predicted that one of the big fights at the next session of the legislature would be on the question of the preservation of the water power of the state.

March 18 and 19, 1918.—The annual convention of the Kansas State Association of Master Plumbers, at Lawrence, Kan. The sessions will be held in the Chamber of Commerce.

March 27 and 28, 1918.—The quarterly meeting of the National Association of Brass Manufacturers, at French Lick Springs, Ind.

April 1 and 2, 1918.—The annual meeting of the Arkansas Master Plumbers' Association, at Little Rock, Ark., with headquarters at Marion Hotel.

April 2, 1918.—The annual convention of the Massachusetts State Association of Master Plumbers, at Boston.

April 18, 19, and 20, 1918.—Fifth National Foreign Trade Convention, at Cincinnati, Ohio, with headquarters at the Gibson Hotel.

May 13 and 14, 1918.—The ninth annual convention of the National Pipe and Supplies Association, at Cleveland, O., with headquarters at the Hollenden Hotel.

May 14-15, 1918.—The annual convention of the New Jersey State Association of Master Plumbers, at East Orange, N. J.

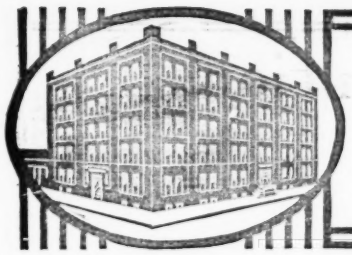
June 4, 5 and 6, 1918.—The thirty-sixth annual convention of the National Association of Master Plumbers, at St. Louis, Mo., with headquarters at the Planters' Hotel.

June 17 and 18, 1918.—The thirtieth annual convention of the American Boiler Manufacturers' Association, at Philadelphia, with headquarters at the Bellevue-Stratford Hotel.

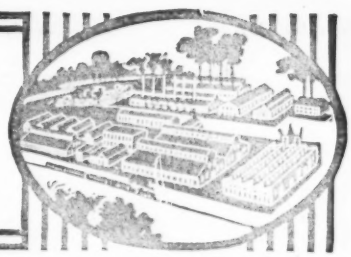
September 3, 4 and 5, 1918.—The annual meeting of the American Society of Sanitary Engineering, at Chicago, Ill., with headquarters at the Congress Hotel.

A new building and plumbing ordinance for Jerome, Ariz., has passed the preliminary stages and is expected to become a law in the near future. The new law provides for the securing of building permits and for the inspection of the work done. One section provides that no plumbing or electrical work shall be done except after a proper permit has been secured.

Delegates Attending the Annual Convention of the Maine State Association of Master Plumbers, at Portland, Me.



Among the Wholesalers and Manufacturers



JOSAM MFG. CO. OPENS TWO BRANCH OFFICES.

The Josam Mfg. Co., of St. Louis, Mo., has just opened two new offices, a southern branch at 615 Empire Building, Atlanta, Ga., and a Pacific Coast branch at 1002-1004 Merchants' National Bank Building, San Francisco, Cal.

TO DEAL IN PLUMBING SPECIALTIES.

The Southern Specialty Co. has just been organized to deal in plumbing specialties, and has started in business at 105 South Jennings Avenue, Fort Worth, Texas. M. G. Wasson and J. W. Morris are at the head of the new enterprise.

CELEBRATES OPENING OF NEW ADMINISTRATION BUILDING.

The Greenfield Tap & Die Corporation, of Greenfield, Mass., celebrated the opening of its new administration building, on Sanderson Street, in that city, on Tuesday afternoon and evening, March 5th. Invitations to attend the event were issued to men in the trade throughout New England and several hundred of the concern's customers accepted the invitation and spent a pleasant afternoon of inspection of the handsome structure.

OLIN F. CHELLIS NOW PRESIDENT OF DALTON-INGERSOLL MFG. CO.

Olin F. Chellis, who has been connected with the Dalton-Ingersoll Mfg. Co., of Boston, Mass., jobbers in plumbing supplies, for nearly 34 years, has been made president and general manager, succeeding Oscar J. Saxe, who died recently. Mr. Chellis had been secretary of the company for a number of years. Under the new arrangement this office has been abolished, and Mr. Chellis, as president and general manager, and William H. Woodbury, as treasurer, will conduct the business.

AMERICAN RADIATOR CO. CLOSES BEST YEAR IN ITS HISTORY.

The American Radiator Co., of Chicago, has just closed the most prosperous year in its history. The net profits after providing for income and excess profits taxes and all other deductions, amounted to $3,261,871, compared with $2,604,067 for the prior year. The profits of the Canadian, English, French and Italian companies aggregated the sum of $952,556, and the combined net profits of the parent and constituent companies were $4,214,428. The profits of the parent company were equivalent to 24.8 per cent on the common stock and of the parent and constituent companies were equivalent to 32.6 per cent on the common. The surplus as of January 31, 1918, was $6,420,094. The aggregate surpluses of the constituent companies as of like date were $8,517,473. Total surpluses as of January 31st were $14,937,567.

Clarence M. Woolley, president of the company, said in his annual report of the company's position: "Inasmuch as the selling prices for the year were consistently related to the enhanced replacement value of raw materials, and products previously accumulated, the profits for the year were in a measure due to such higher selling prices. It is obvious that on a downward swing of commodity prices, if such shall take place, a heavy loss may be incurred in materials and product meanwhile accumulated, and the company during the last three years of ascending costs has accumulated a reserve of $1,250,000 to maintain the integrity of its inventories."

CAMERON-SCHROTH CO. IN RECEIVER'S HANDS.

Following a petition of creditors against the Cameron-Schroth Co., jobbers in plumbing and heating supplies, in Chicago, the concern's affairs were on Monday, March 11th, placed in the hands of a receiver, Howard Hews being appointed to act in this capacity.

THE MARCH MEETING OF THE ILLINOIS CHAPTER OF A. S. H. & V. E.

The Illinois Chapter of the American Society of Heating and Ventilating Engineers held its regular monthly meeting on Monday evening, March 11th, at the Chicago Engineers' Club in Chicago, and it proved to be one of the most interesting and instructive gatherings held for some time by the chapter.

Following the usual dinner, Dr. E. Vernon Hill, president of the chapter, declared the meeting open, after which Secretary A. E. Stacey, Jr., called the roll. The report of the Standardization Committee, signed by E. F. Capron, chairman, H. M. Hart and R. A. Widdicombe, was then read by Secretary Stacey. This report contained much food for thought and it created a lively discussion on the part of the following members: J. F. Tuttle, C. F. Newport, Dr. E. V. Hill, H. M. Hart and A. Kehm.

In this discussion the problems of figuring radiation and the proper size of pipe for hot water heating were given much attention. Following this discussion the members of the Standardization Committee received a vote of thanks and the committee was thereupon declared dissolved.

Dr. E. Vernon Hill thereupon delivered the address of the evening entitled "The Kingdom of Dust." The address was accompanied by a series of exceptionally interesting microscopic slides, in which the colors were reproduced as well as the form. Dr. Hill defined dust as matter out of place, and he gave a very illuminating treatise on dust determination and its effects on the human body. He divided the kingdom of dust into three provinces or regions, as follows: Physiological dust, chemical dust and physical dust. The interesting address received the undivided attention of

everybody present, and Dr. Hill was given a rising vote of thanks for his meritorious work.

Following this address, August Kehm, one of the best known members of the chapter, was persuaded to give a talk on the installation of the enormous steam heating system at Camp Grant, Rockford, Ill., a heating contract which called for the installation of 62 boilers, weighing 10 tons each, and heating 672 buildings on a plot of land two miles wide and four miles long. As in nearly all Government work of this kind the steam mains are carried on pole lines and the steam pressure in the lines at this cantonment varies from 40 to 70 lb. In the course of his talk, Mr. Kehm mentioned that on the coldest days during the past winter icicles were formed on those pipe lines, caused by the snow thawing from the heat of the sun, and these icicles were formed in spite of the fact that the pipes contained steam of from 40 to 70 lb. pressure, a fact which indicated that the pipe covering used was efficient. Mr. Kehm also called attention to the fact that an undertaking of this kind was not all steamfitting, one-fifth of the work being mason work, one-fifth carpenter work, one-fifth transportation and only two-fifths steamfitting. Work on this contract was begun on the 21st day of August and it was finished the 30th day of November.

Mr. Kehm received the hearty thanks of the chapter for his interesting remarks.

Among the members of the chapter in attendance were the following: E. J. Claffey, J. A. Cutler, G. M. Getschow, W. B. Graves, H. M. Hart, Dr. E. Vernon Hill, C. W. Johnson, August Kehm, George H. Kirk, Charles G. Lamb, F. Lautenschlager, Charles F. Newport, A. E. Stacey, Jr., J. F. Tuttle and James B. Wigman. Several guests were also in attendance.

DAHLQUIST MFG. CO. COMPLETES NEW FACTORY.

The Dahlquist Mfg. Co. has just completed the construction of its new factory on West Third Street, South Boston, Mass., on a plot of land adjoining its former

Dahlquist Mfg. Co.'s New Factory at South Boston, Mass.

plant. The steadily growing demand for the company's products necessitated the building of this new plant. Theodore W. Dahlquist is at the head of this concern.

BUILDING PERMITS FOR FEBRUARY.

With the vast government construction activities omitted from the tabulation of building permits issued in the principal cities of the country and with present work running strongly towards war necessities, the showing made by the cities becomes necessarily unfavorable. The statistics of building permits issued now present only a partial view of the current work, whereas a year ago they represented an overwhelming percentage of it. And the volume of government work is still increasing. Ordinary building operations—that is, private building—have shrunk to less than half the normal amount, when the increased cost of construction is taken into consideration. In estimated cost it is something more than 50 per cent. It is quite evident that the current amount of normal construction is considerably less than the actual requirements. Households are "doubling up" all over the land; business structures are not kept strictly up in repairs. The construction of needed buildings of all kinds is being deferred to more propitious times. But the crowding of necessary work makes a very fair showing, all things considered.

In 110 principal cities of the United States the building permits issued in February, as officially reported to the American Contractor, Chicago, total $29,074,332, as against $52,739,254 for February last year, a decrease of 44 per cent. Of these cities, 32 show an increase over the corresponding period a year ago. In most instances this increase is due to the issuance of permits last month for one or more unusually large structures. Thus, in Baltimore the gain of 114 per cent is accounted for by the issuance of a permit for an addition to the Bartlett-Hayward Co. munition plant, at a cost of $277,500, and a $283,443 permit issued to the Consolidated Power Co. Harrisburg obtains its neat gain through a permit for a $170,500 school building. Sioux City's splendid increase comes from a permit for a $400,000 department store building. Youngstown owes its big increase to a $600,000 permit taken out by the Home Savings & Loan Co. The large cities generally show a decided falling off in construction work. Details follow:

City.	February, 1918 Estimated cost.	February, 1917 Estimated cost.	Per cent. Gain.	Per cent. Loss.
Akron, Ohio	$ 177,585	$ 965,560	...	80
Albany, N. Y.	139,600	300,740	...	53
Allentown, Pa.	11,250	46,925	...	76
Altoona, Pa.	7,299	14,428	...	49
Atlanta, Ga.	281,798	493,323	...	42
Atlantic City, N. J.	56,318	194,912	...	71
Baltimore, Md.	672,466	323,382	114	..
Bayonne, N. J.	4,450	69,450	...	93
Berkeley, Cal.	36,500	94,300	...	61
Binghamton, N. Y.	39,501	156,931	...	74
Birmingham, Ala.	56,111	147,257	...	61
Boston, Mass.	989,000	3,303,000	...	70
Brockton, Mass.	4,850	36,000	...	86
Buffalo, N. Y.	493,000	469,000	5	..
Canton, Ohio	48,030	105,700	...	54
Cedar Rapids, Iowa	66,000	40,000	65	..
Charlotte, N. C.	12,825	74,440	...	82
Chattanooga, Tenn.	49,301	54,371	...	9
Chicago, Ill.	2,376,000	3,657,900	...	35
Cincinnati, Ohio	249,700	841,490	...	70
Cleveland, Ohio	1,262,070	2,784,260	...	54
Colorado Springs, Colo.	630	10,515	...	94
Columbus, Ohio	158,510	223,655	...	29
Dallas, Tex.	148,058	369,342	...	59
Davenport, Iowa	25,645	10,935	134	..
Dayton, Ohio	665,114	1,932,090	...	65
Denver, Colo.	173,630	248,520	...	18
Des Moines, Iowa	54,850	226,160	...	75
Detroit, Mich.	857,580	2,104,470	...	59
Dubuque, Iowa	35,030	19,400	78	..
Duluth, Minn.	188,095	149,035	20	..
East Orange, N. J.	24,400	137,994	...	82
East St. Louis, Ill.	15,950	240,853	...	93
Elizabeth, N. J.	20,250	58,705	...	65
Erie, Pa.	30,025	138,315	...	78
Evansville, Ind.	64,280	50,288	27	..
Grand Rapids, Mich.	98,428	61,505	60	..
Harrisburg, Pa.	181,900	10,895	1,569	..
Hartford, Conn.	37,395	144,010	...	74
Haverhill, Mass.	16,000	11,600	37	..
Hoboken, N. J.	19,265	74,100	...	74

City.	February, 1918 Estimated cost.	February, 1917 Estimated cost.	Per cent. Gain.	Per cent. Loss.
Holyoke, Mass.	1,070	77,000	...	98
Huntington, W. Va.	59,995	53,575	11	..
Indianapolis, Ind.	317,626	522,510	...	39
Kansas City, Kans.	25,100	77,230	...	67
Kansas City, Mo.	1,862,700	759,630	144	..
Lawrence, Mass.	12,820	71,300	...	82
Lincoln, Nebr.	31,605	66,565	...	52
Long Beach, Cal.	148,865	48,616	206	..
Los Angeles, Cal.	765,630	1,222,518	...	37
Louisville, Ky.	82,594	180,320	...	54
Manchester, N. H.	23,453	61,625	...	61
Memphis, Tenn.	95,505	246,785	...	60
Milwaukee, Wis.	335,619	403,844	...	16
Minneapolis, Minn.	253,095	323,805	...	21
Montgomery, Ala.	12,272	15,430	...	20
Newark, N. J.	298,976	532,955	...	43
New Bedford, Mass.	41,400	228,950	...	81
New Britain, Conn.	114,575	179,775	...	36
New Haven, Conn.	678,195	133,186	409	..
New Orleans, La.	90,885	78,813	15	..
New York, N. Y.:				
Boro of Queens	379,669	865,243	...	44
Boro of Manhattan	2,377,355	8,572,499	...	72
Boro of Richmond	89,820	318,262	...	69
Boro of Brooklyn	820,449	1,999,165	...	58
Boro of Bronx	661,398	586,334	12	..
Total	5,328,691	12,341,503	...	56
Niagara Falls	89,875	51,275	75	..
Oakland, Cal.	407,640	366,022	11	..
Oklahoma City, Okla.	258,315	163,988	57	..
Omaha, Nebr.	163,600	936,925	...	82
Pasadena, Cal.	44,763	94,327	...	52
Passaic, N. J.	2,125	7,550	...	71
Paterson, N. J.	50,580	86,980	...	41
Peoria, Ill.	82,100	153,691	...	46
Philadelphia, Pa.	591,865	4,028,115	...	85
Pittsburgh, Pa.	414,688	241,535	71	..
Portland, Me.	20,075	24,550	...	18
Portland, Ore.	221,830	210,660	5	..
Pueblo, Colo.	14,470	51,194	...	71
Reading, Pa.	125	9,500	...	98
Richmond, Va.	144,046	536,532	...	73
Rochester, N. Y.	103,800	241,861	...	57
Saginaw, Mich.	9,042	6,775	33	..
Salt Lake City, Utah.	35,510	64,900	...	45
San Diego, Cal.	68,155	67,175	1	..
San Francisco, Cal.	537,230	1,166,020	...	53
San Jose, Cal.	62,274	19,583	218	..
Savannah, Ga.	30,265	93,600	...	67
Schenectady, N. Y.	9,815	285,605	...	96
Scranton, Pa.	3,865	24,028	...	83
Seattle, Wash.	896,030	634,625	40	..
Sioux City, Iowa	432,875	92,000	370	..
South Bend, Ind.	12,265	130,822	...	90
Spokane, Wash.	32,243	104,750	...	69
Springfield, Ill.	34,365	126,090	...	72
Springfield, Mass.	12,775	162,242	...	92
St. Joseph, Mo.	8,845	23,820	...	62
St. Louis, Mo.	361,304	906,541	...	59
Stockton, Cal.	57,105	42,365	34	..
St. Paul, Minn.	238,473	218,044	9	..
Superior, Wis.	141,720	9,395	1,408	..
Syracuse, N. Y.	44,910	201,732	...	77
Tacoma, Wash.	196,644	77,207	154	..
Terre Haute, Ind.	8,060	23,060	...	65
Toledo, Ohio	30,782	388,133	...	92
Topeka, Kans.	1,790	23,991	...	92
Trenton, N. J.	4,600	550,845	...	99
Utica, N. Y.	10,500	30,750	...	65
Washington, D. C.	731,450	1,221,825	...	40
Wichita, Kans.	262,650	233,300	12	..
Wilkes-Barre, Pa.	87,162	58,870	48	..
Wilmington, Del.	70,440	51,355	37	..
Worcester, Mass.	127,425	217,990	...	41
Youngstown, Ohio	683,740	255,420	167	..
Total	$20,074,332	$52,739,254	...	44

Wabasha, Minn.—A. T. DuMont has purchased John Moser's plumbing business in this city.

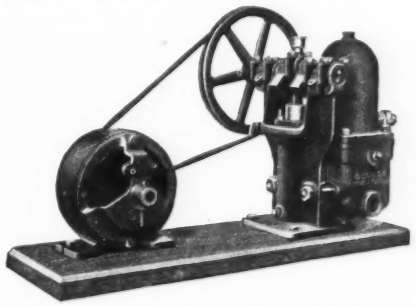
TRADE LITERATURE.

The first number of a monthly publication, entitled "Hudson Atlantic," has just been issued in the interests of the salesmen of Hudson boilers and Atlantic radiators. Among the interesting articles of this number we note: "Seeing Ourselves as Others See Us" and "Figuring Profits," both well written and instructive. Howard T. Gates, vice-president and secretary of the Atlantic Radiator Co., New York City, is the editor.

The "Petroleum and Natural Gas Register" is the title of a comprehensive directory of the petroleum and natural gas industries, including the various branches of the oil trade in the United States, Canada and Mexico. Names of officers, capital stock, location of properties and other valuable data are given. The text includes the following important divisions: Refiners of petroleum; manufacturers and compounders of lubricating oils, greases, petrolatum, etc.; marketers and jobbers, Eastern States marketers and jobbers, Central and Southern States; marketers and jobbers, Western States; producers of petroleum, Eastern and Central States; producers of petroleum, Oklahoma and Kansas; producers of petroleum, Texas and Louisiana; producers of petroleum, Western States; oil pipe line companies; casing head gasoline manufacturers; natural gas producers and distributors; manufacturers of and dealers in equipment and supplies of all kinds for the oil and natural gas industries. The text also contains a directory of the officers and members of the oil and gas associations and clubs in the United States. The register is published by the "Oil Trade Journal," of New York City, consists of 548 pages, 9 by 12 inches, bound in cloth, and costs $12 a copy.

A NEW WATER SUPPLY PUMPING OUTFIT.

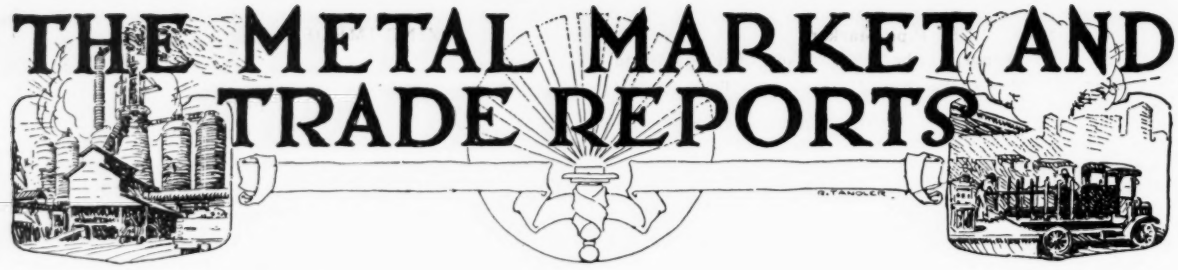
The accompanying cut illustrates one of the several new water supply pumping outfits, which have just been placed on the market by the Goulds Mfg. Co., of Seneca Falls, N. Y. This outfit is described as having no gears, thereby making the pump quiet and smooth running. It operates at a speed of 500 revolutions per minute and is self oiling, the bearings being fitted with ring oilers.



A New Water Supply Pumping Outfit.

These rings hang on the shaft with the lower part immersed in oil. When the pump shaft revolves, the ring also turns, carrying the oil to the shaft by cohesion, keeping it constantly lubricated. This pump is fitted with an air cock, making it suitable for either open or pressure tank water systems. Another point emphasized by the manufacturer is the fact that these outfits are interchangeable in the sense that a dealer having one complete outfit in stock and various extra parts can make up any one of several different outfits. The outfit shown is mounted on a wood base.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

The improvement in traffic conditions has been followed by another period of car shortage which is interfering with production and shipment. Inquiries involving heavy tonnages are flooding the market, but producers refuse to take on further obligations under present conditions. Unfilled tonnage of the United States Steel Corporation at the end of February was 9,228,453, a decrease of 189,400 since January 31st. Pig iron output in February amounted to 2,319,399 tons, an average rate of 82,835 against 77,799 tons a day in January, an increase of 6.5 per cent. The increase was mainly in the Chicago district where the average outturn of 10,577 tons showed an expansion of 32 per cent. Demand for raw materials knows no limit. Every furnace, every mill and every iron working establishment is rushed to the utmost. Large government orders for sheets, corrugated and plain, were placed last week. Considerable interest attaches to a heavy purchase of steel rails contemplated by the government for use of domestic roads. The Director General has begun an active investigation of requirements and the possibilities of securing the same with the least disturbance to the steel market or overtaxing rail mills, some of which have diverted this tonnage to shell steel. It is also intimated that the government is about to enter the market for a large number of cars and locomotives. Steel men are consulting and preparing data for the conference in Washington on the price question, which, it is supposed, will probably be held ten days or a fortnight hence. There are not so many furnaces banked or out of blast as there were and the production of iron during March is expected to show increase over February. There is much room for improvement and the output of iron depends upon traffic conditions. If these can be so improved as to afford a freer movement of coke to the furnaces there should be a vast improvement. The quality of coke received is improving and as a consequence there is less off grade iron for sale. Consumers are making every effort to cover their wants for the second half, but are meeting with indifferent success, as buyers must have influence now to secure consignments from furnaces. For nearby delivery there is no iron to be had, either for foundry or steel making purposes. Prices are based upon the old standard grade of No. 2 foundry and basic iron at $33 furnace, and will be operative until April 1st.

Copper.

While there has been some delay in delivery of copper, there has been no general complaint of shortage. Delays must be expected in view of the impossibility of defining in advance what the government's requirements are going to be and when they will be demanded. From all the information at hand there does not appear to be much danger of the ultimate supply falling short of requirements, notwithstanding certain interests are urging that it would be advisable to increase the price to prevent any discouragement of production. Several weeks will elapse before the question of price may be taken up at Washington, but the general opinion now is that the present price will be continued after June 1st.

Tin.

The position of tin is discouraging from an American consumer's standpoint. There is no spot tin for sale, and Straits tin is not offered in any position. There is nothing left but Chinese, Banka, and Lamb and Flagg, which last is an English product. There are to be no more exports allowed from the United Kingdom, which will cut off even Lamb and Flagg. Consumers' hopes are centered on Chinese and Banka, and even these are getting to be of an uncertain quantity. Prices are as follows: Chinese, March shipment, 71 cents; February, 73 cents; Banka, March, 75 cents; February, 76½ cents.

Lead.

Lead was in small demand last week, and offerings from the West were made more freely, resulting in an easier market with prices at 7⅝ cents spot, New York, and 7⅛ cents, East St. Louis.

Spelter.

Spelter was in better demand, although the market was by no means active. Producers maintain prices at 8.15 cents for spot, New York.

New York Old Metal Market.

The following prices are current for old metals.

	Buying.	Selling.
Copper, heavy	23 cents	23½ cents
Copper, crucible	22 cents	23 cents
Copper wire	21 to 22 cents	23½ cents
Copper, light	18½ to 19 cents	21½ cents
Brass, heavy	14 to 14½ cents	16 cents
Brass, light	11 to 11½ cents	12 cents
Brass clippings	15 to 15½ cents	16 cents
Brass turnings	12½ to 13 cents	14 cents
Cocks and faucets	16 to 17 cents	18 cents
Lead, heavy	6¾ to 7 cents	7¼ cents
Tea lead	5 to 5¼ cents	6 cents
Zinc scrap	5½ to 5¾ cents	6½ cents
Solder joints	13 to 14 cents	15 cents
Mixed babbitt	7½ to 8 cents	8½ cents

Chicago Old Metal Market.

Chicago wholesale dealers' prices are nominally as follows:

	Buying.	Selling.
Heavy yellow brass	16 to 16½ cents	17½ cents
Brass, medium	13 to 13½ cents	14½ cents
Brass, light	11¾ to 12 cents	13 cents
Red brass	21½ to 22 cents	23 cents
Brass turnings	13½ to 13¾ cents	14½ cents
Brass clippings	16¼ to 17 cents	18 cents
Cocks and faucets	16 to 17 cents	18 cents
Copper, heavy	21¾ to 22¾ cents	23½ cents
Copper, light	19¾ to 20½ cents	21½ cents
Lead, heavy	5¾ to 6¼ cents	6⅜ cents
Tea lead	5 to 5½ cents	6 cents
Zinc scrap	5¼ to 5½ cents	6 cents
Mixed babbitt	7 to 7½ cents	8 cents
Lead dross	4 to 4⅜ cents	5¼ cents
Old iron pipe (per ton)	$23.00	$24.00

The Pipe Market.

There is no change in the pipe market. Quotations on less than car lots of full weight steel pipe remain as follows:

	Butt Weld.		Lap Weld.	
	Blk.	Galv.	Blk.	Galv.
⅛ to ⅜ inch	38	10	....	....
½ inch	42	26	....	....
¾ to 3 inch	45	30	....	....
2 inch	....	....	38	24
2½ to 6 inch	....	....	41	27
7 to 12 inch	....	....	38	23
12 to 14 inch	....	....	28½	....
15 inch	....	....	26	....

The quotations apply to all shipments from stock, regardless of quantity.

On extra strong and double extra strong steel pipe in less than car lots, quotations are as follows:

	Extra Strong.				Double Extra Strong			
	Plain Ends		Plain Ends		Plain Ends		Pl'n Ends	
	Butt Weld.		Lap Weld.		Butt Weld.		Lap Weld	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
⅛, ¼ and ⅜ inch	31	11	....	....	....	....	....	....
½ inch	36	16	....	....	27	7	....	....
¾ to 1½ inch	40	20	....	....	30	10	....	....
2 to 2½ inch	41	21	....	....	32	12	....	....
3 inch	41	21	....	....	....	....	....	....
2 inch	....	....	33	14	....	....	25	6
2½ to 4 inch	....	....	36	17	....	....	27	8
4½ to 6 inch	....	....	35	16	....	....	26	7
7 to 8 inch	....	....	31	12	....	....	21	2
9 to 12 inch	....	....	26	7	....	....	....	....

With threads only, the basing discount is 1 and 1½ points lower. With threads and coupling the basing discount is 3 points lower. The quotations apply to all quantities less than car lots.

Quotations on full weight genuine iron pipe, in less than car lots, are as follows:

	Butt Weld.		Lap Weld.	
	Blk.	Galv.	Blk.	Galv.
⅛ and ¼ inch	16	+13	....	....
⅜ inch	17	+12	....	....
½ inch	21	1	....	....
¾ and 1 inch	26	8	....	....
1¼ inch	26	8	11	+6
1½ inch	26	8	18	2
2 inch	....	....	19	3
2½ to 6 inch	....	....	18	3
7 to 12 inch	....	....	18	3

These quotations are f. o. b. Pittsburgh, and apply to all shipments from stock, regardless of quantity.

On extra strong and double extra strong genuine wrought iron pipe, with plain ends and in less than car lots, the quotations are as follows:

	Extra Strong				Double Extra Strong			
	Butt Weld.		Lap Weld.		Butt Weld.		Lap Weld.	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
⅛ to ⅜ inch	13	+7	....	....	....	....	....	....
½ inch	18	+2	....	....	5	+15	....	....
¾ and 1 inch	24	4	....	....	10	+10	....	....
1¼ inch	24	4	10	+10	10	+10	....	....
1½ inch	24	4	16	+4	10	+10	5	+14
2 inch	....	....	18	+2	....	....	5	+14
2½ to 4 inch	....	....	20	List	....	....	7	+12
4½ to 6 inch	....	....	19	+1	....	....	....	....
7 to 8 inch	....	....	11	+9	....	....	....	....
9 to 12 inch	....	....	6	+14	....	....	....	....

These retail prices are f. o. b. Pittsburgh, and apply to all quantities except in car lots. With threads only, the basing discount is 1½ points lower. With threads and couplings, the basing discount is 3 points lower.

To ascertain the price in any city, deduct the proper freight rate from Pittsburgh to that city. To illustrate: ¾ to 3-inch steel pipe, black, is 45 per cent off, Pittsburgh. The freight to Chicago is 31 cents, or it would be 45 per cent minus .031, or .419 per cent Chicago for 10 cents a hundred freight you should deduct one point.

ZINC IMPORTS OF MADRAS.

Imports of zinc by the Madras consular district of India were 222,768 pounds in 1915-1916, valued at $35,480.

Three kinds of zinc sheets are imported for the Indian market—plain, roofing, and perforated. The first two are in greater demand. The supply comes principally from the United Kingdom. Prices are alwas quoted for a hundredweight of 112 pounds. Perforated and plain sheets imported are generally 7 by 3 feet in size, and packed in kegs of 50 sheets each. Roofing sheets generally are 8 by 4 feet, packed in bundles of 10 sheets each. The gauge usually is 22. Zinc sheets are regularly quoted in the fortnightly market reports of the local chamber of commerce, but for a long time these bulletins have stated that there is no stock of zinc sheets.

Zinc oxide is imported from the United Kingdom. There are two kinds, "pure" and "commercial." Pure oxides are imported for chemical preparations, and are in packets of 1 pound each. The average f. o. b. London price of oxides to be imported here is now 1s. 5d. ($0.34) per pound. The P. B. quality is in greatest demand.

Commercial zinc oxide is used for painting. It is imported in kegs of 1 hundredweight each, and the average f. o. b. London price is 1s. 3d. ($0.30) per pound.

Zinc chloride is chiefly imported from the United Kingdom, and is received in 1-pound bottles. It comes in sticks and the chief importers are pharmacists, but there are important electric power plants at Madras, and at Bangalore, Mysore, which use this article.

The tariff on zinc sheets is 7½ per cent ad valorem. The duty is the same for spelter, zinc oxide, zinc dust, sulphuric acid, and zinc chloride.

A minor use to which zinc is put is in the preparation of solder, of which a considerable quantity is employed by three petroleum companies in Madras, for soldering tin cans in which kerosene oil is sold.

Making Yellow Brass Red.

Yellow brass castings may be given a reddish color by leaving the castings in the sand until cold. The sand keeps the castings hot for a long time, giving the surface a chance to oxidize, which results in the reddish color. Addition of a half pound of 30 per cent manganese copper to each 100 pounds of the alloy will promote the reddish color.

White Metal for Patterns.

Lead 90 per cent and antimony 10 per cent is said to make a white metal that has small shrinkage and is excellent for pattern plates. A harder metal for the same purpose is zinc 66 per cent and tin 34 per cent. An amalgam for stopping holes that cannot be easily soldered is made from filings of this alloy and mercury, kneaded in the hand into stiff dough, squeezing out all the mercury possible. This amalgam should be pressed, when first made, into the cavity and allowed to harden. When hard it may be scraped or filed like the metal itself.

Knowledge Going to Waste.

A man who was traveling in the mountains stopped at a cabin and asked for a drink of water. An old woman brought it out to him, and after drinking he had quite a talk with her, telling her great stories about some of the wonders he had seen in the outside world. Finally, when he stopped to take breath, the old woman took her pipe out of her mouth and said:

"Stranger, if I knowed as much as you do I'd go som'ere and start a little grocery."—"St. Paul Pioneer Press."

AMONG THE PLUMBING AND HEATING CONTRACTORS

Illinois

Chicago and Vicinity.

William Morant, of 1478 Catalpa Avenue, will install the plumbing system in an apartment building for twenty families to be built at a cost of $100,000, at the southwest corner of Kedzie and Ainslie Avenues. The heating system will be installed by M. B. Brown & Co., of 9 South LaSalle Street.

The George A. Henrich Co., 5650 Broadway, has been awarded the contract for the installation of a heating system in a warehouse and office building to be erected, at a cost of $50,000, at Clybourne Avenue and Chester Street.

The C. W. Johnson Co., of 644 West Washington Street, has secured the contract for installing the heating system in a factory to be built, at a cost of $60,000, at 4501-29 West 16th Street. The plumbing will be installed by F. G. Winkler, of 841 North State Street.

F. Gerke, of 4529 North Kedzie Avenue, will install the plumbing system in a bank building to be erected, at a cost of $50,000, at 3222-3224 Lawrence Avenue. The heating contract was awarded to the Glennon-Bielke Co., 546 West Lake Street.

R. P. Reedy, of 4015 Cornelia Avenue, has been awarded the contract for the installation of a modern plumbing system in a three-family building to be constructed, at a cost of $11,,000, at 4931 St. Louis Avenue. The heating contract went to the Jefferson Heating Co., of 3547 Cornelia Avenue.

A. A. Alardyce, of 1476 Berwyn Avenue, will install the plumbing system in a store and flat building to be constructed, at a cost of $10,000, at 5449 North Clark Street.

E. J. Benning, of 1124 Belmont Avenue, has secured the contract for the installation of the plumbing system in a new warehouse at 2445-2447 Fulton Street. The heating system will be installed by Johnson Bros. Heating Co., of 1419 Belle Plaine Avenue.

Ben Stevenson, of 956 West Seventy-ninth Street, has been awarded the contract for the installation of a heating system in a new residence at 3500 West Sixty-first Street.

J. J. Cahill, of Evanston, has secured the contract for installing the plumbing system in a residence to be erected, at a cost of $15,000, at Hubbard Woods. The heating system will be installed by Fred Ellis, Winnetka.

P. F. Jirtle, of Chicago Heights, has been awarded the contract for installing the plumbing in an addition to a factory in that town.

J. J. Loughlin, of 7521 Cottage Grove Avenue, will install the plumbing in a store at 3861-3863 Cottage Grove Avenue, which is to be remodeled at a cost of $8,000.

The Advance Heating Co., of 105 North Clark Street, has just been awarded the contract for the installation of a heating system in a residence in Oak Park.

Indiana

Indianapolis and Vicinity.

Building operations in Indianapolis for the month of February this year were just about one-half the value of what they were for February, 1917, according to a report just compiled by Blaine H. Miller, city building commissioner. The total valuation for the month was $317,623 as compared with $522,510. One hundred and eighty-six permits were issued last month as compared with 306 permits for February, 1917.

The Cotton-Wiebke Co., of 1720 East Tenth Street, Indianapolis, has just received the contract for the installation of plumbing and heating systems in a new two-story flat building that is to be erected at 28 East Thirty-second Street, at a cost of $12,000.

The Wurster Co., 1022 College Avenue, has been awarded the plumbing and heating contracts on the new warehouse and distributing station that is to be erected at Greencastle, Ind., for L. T. Hurst & Co., at 134 South Pennsylvania Street, Indianapolis.

Frank Callon, of the plumbing firm of Callon Bros., of 24 South Alabama Street, has received an interesting letter from his son, Gail Callon, who is a member of the Rainbow Division with the American Expeditionary Forces in France. Young Callon says he is enjoying life and hopes to get right into the fray some time soon.

Other Cities in the State.

Earl L. Clevenger, of 125 South High Street, Muncie, has received the contract for the installation of the heating and plumbing in a new $40,000 grade school that is to be erected there in a few months.

Burke Bros., of 521 Washington Street, Gary, were the successful bidders for the plumbing and heating contracts on the new $8,000 residence that is to be erected at 656 Virginia Street, for Rudolph Mohr, of that place.

Ohio

Cincinnati and Vicinity.

A new heating plant will be included in the alterations to be made in a building on the north side of Fourth Street, near Sycamore, in Cincinnati, to be occupied by H. C. Sherrick, blank book manufacturer. The work in all will cost about $10,000.

Wm. Hillenbrand, the well-known master plumber in Cincinnati, was the guest of honor at a dinner at Price Hill House, given by a group of his intimate friends, on the eve of his recent departure for California to spend the latter part of the winter and the early spring. A handsome silver loving cup was presented to Mr. Hillenbrand in honor of the occasion, and he thanked his friends in appropriate remarks, in reply to the informal addresses made by them. John Hill was toastmaster.

Building operations for February were less active in Cincinnati than in February, 1917, according to figures announced by the office of the building commissioner. Most of the 681 permits issued were for repair work only, accounting for the comparatively small volume of business as measured by value, which was only $249,700 as compared with $841,490 for February, 1917.

Two public comfort stations are to be built in the business center of Youngstown, if plans now under way are brought to a successful conclusion. The work was planned some time ago, and $7,000 was appropriated, but increasing material costs since then have made it necessary to double this amount, the city engineer informing the council that it will be impossible to proceed unless this is done. The location will be the public square.

At a recent meeting the Youngstown Board of Health was reorganized, and at the same time two new members of the plumbers' examining board were appointed to take the place of members who had resigned, Charles Kist, one of these, having gone out of business, and Mr. Scheibel resigning on account of ill health. Davis Beede and C. W. Henry were appointed to represent the master plumbers on the board, and John Little was re-elected to represent the journeymen.

Charles Mayer, a prominent Cincinnati real estate operator, is receiving estimates on the various branches of work involved in the construction of an apartment building of the family-hotel type, in Mt. Auburn, which will cost about $200,000. Furnished suites will be rented exclusively. The building will have 111 apartments, each with bath, indicating the extent of the plumbing job. M. F. Eastman is the architect in charge.

Texas

John L. Martin, of 408 Congress Street, Austin, has recently secured a large number of contracts, the following being the most notable: Plumbing and heating in the dining hall and the dormitory buildings at the State School for Feeble Minded in Austin; installing a central heating plant for fourteen buildings at the State Confederate Home, also in Austin; installing a new heating system for the buildings of the Southwestern University at Georgetown, Texas,; plumbing and heating in new high school building at Victoria, Texas. All these systems are now being installed.

John L. Martin.

Ed. E. Eastham, of Beaumont, has a number of very attractive contracts on his books, among them plumbing and heating in the Y. M. C. A. Building, now being erected in Beaumont; the public school building at Beaumont; the depot for the Frisco Railway Co., at Beaumont, and a store building for B. Deuster Finn Co., at Beaumont.

W. H. Schutte & Co., of Galveston, have received the contract to install plumbing systems in sixteen buildings now being erected at Fort Crockett, near Galveston.

California

San Francisco and Vicinity.

The rainy weather of the past two weeks has made the outlook much better in many sections of California and has given the local plumbers quite a bit to do in the way of repair work and small jobs generally. The building situation stands about as for some time past, with very little doing in private residence or business building work, but with a good deal of activity in the building of additions to industrial plants, government work and in improvements directly resulting from shipbuilding and other government activities.

The Building Industries Association of San Francisco held its annual meeting last week. The plumbing and kindred trades are well represented among the new officers, the executive committee and the board of governors. Herman Lawson, the well-known plumber, is on the executive committee, while the following are named on the board of governors: Stephen G. Hurst, in the plumbing supply line; J. A. Korel, Herman Lawson and H. P. Stowe.

The Garden Homes Co. is having plans drawn for several two-story and basement dwellings to be erected in the St. Francis Wood section. Each building will contain from six to eight rooms and will be provided with modern plumbing and heating.

Other Cities in the State.

George F. Bell, a plumber of Paso Robles, has now put in a department for the manufacture of feed and water troughs under the management of C. S. Kinney. An order for twelve large feed troughs for use in feeding beet pulp to animals has just been completed, and other orders are on hand for immediate filling.

Bids for the general contract and for the plumbing of the city hall, at El Segunda, were opened this week. The low bidders for the plumbing were S. Hill & Son, whose figure was $4,359.

The store and shop of the Krelle Plumbing & Electrical Co., at Santa Maria, was damaged by fire last week to the extent of about $1,500. The loss was covered by insurance.

The Scottish Rite Association will erect a three-story and basement Class A lodge and office building at Fresno, at a cost of about $100,000.

Massachusetts

Boston and Vicinity.

President J. Preston Perham, of the Massachusetts Association of Master Plumbers, has named former president, William A. Bradford, of Quincy, and Edwin W. Cox, president of the Boston association, as a committee to serve with him in arranging the final details of the program for the annual state convention, which is to be held in Boston on April 2nd.

George H. Taylor, a Wakefield master plumber, and Jonas A. Larraway, head of the Winchester plumbing firm bearing his name, have been re-elected members of the boards of selectmen in their respective towns. Mr. Larraway has been made chairman of the Winchester board.

Work has been started on rebuilding the store and apartment block on High Street, Clinton, owned by R. Maitland & Sons, plumbing and heating contractors.

J. B. Wise

The Man and the Making of a Big Industry

By Alfred J. Norris

HOW a poor boy rose from obscurity to a plane of power and prestige in the manufacturing world. His belief in the nobility of labor and the value of human service.

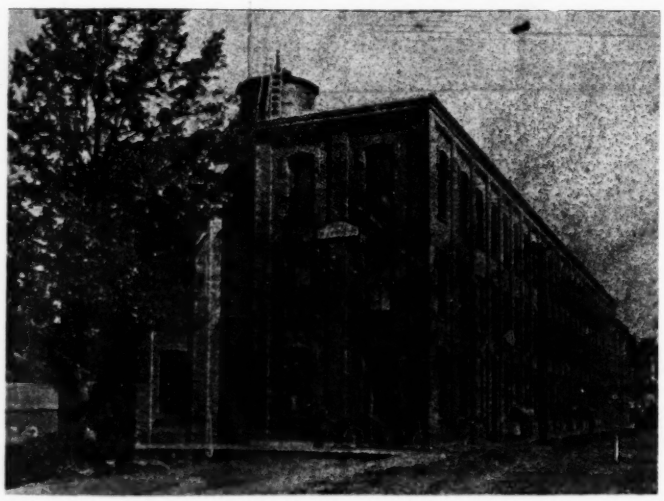
CHAPTER III

J. B. Wise Enters Plumbing Supply Field

As his administrative genius grew greater he saw new opportunity beckoning him onward in his climb to success. With clearness of thought and foresight he saw and considered the realm of Hygeia—the field of sanitary plumbing. Through its portals he felt impelled to enter, and as a manufacturer.

And so it was that in 1900 J. B. Wise purchased the machinery, tools, equipment and good-will of the Jefferson Brass Works and began the manufacture of a few items in the plumbing supply line, such as traps, etc. This work was carried on in his factory erected in 1895. The business gradually increased, soon necessitating greater capacity to accommodate the rapidly growing trade. The thorough equipment of the plant in manufacturing appliances served to produce first-class products, many of them having original and latest improved features. Later he added to his line until he became one of the largest manufacturers in the country of this class of material.

When he first entered the plumbing field he had but few customers. They all knew him personally and became his intimate friends because they had confidence in him and in his goods. When he made a statement they knew it could be absolutely relied upon. As his line became more extensive, his list of customers increased and he maintained the same high degree of respect and friendship from them all. He was in the habit of calling in person on his trade. His wholesome handshake and genial smile made him welcome everywhere. Such was his personality.



Building Located at Mill & Moulton Streets. Now a Part of Main Factory of J. B. Wise, Inc.

Builds New Factory

The capacity of his plant became inadequate to meet the expanding requirements of the business, therefore in 1904 Mr. Wise built another new factory which is now a part of the main Mill Street plant of J. B. Wise, Inc. This structure is 200 feet long by an average of 60 feet wide, three stories in height, and built of brick.

A predominant trait in the character of J. B. Wise was his absolute honesty and integrity. Like Marshall Field and other master executives, he never misrepresented an article nor allowed his salesmen to do so. His business policy was a square deal for everybody and to make every customer a satisfied one. He rigidly upheld the high standard of quality in all his products. His business was therefore not only increasing in volume but was being built up on sound basic principles.

Takes Trip Around World

In his early newsboy days J. B. Wise had pondered over pictures in newspapers of strange places, queer people and wonderful cities. He was curious and yearned to know more about these foreign lands. He hoped that some day he would have the chance to travel far beyond the horizon, to see what was really beyond the land of the stars and stripes.

This hope, interwoven no doubt with the adventurous fancies of boyhood, was finally realized when in December, 1906, he sailed from San Francisco to Honolulu, the beginning of a comprehensive journey around the world. He visited many lands, among them Australia, New Zealand, the Philippine Islands, China (including Thibet) Japan, India, Palestine, Northern Africa, Egypt, Italy, France, the British Isles, etc.

While he was traveling in sunny Italy an honor was to be his that would long be remembered—one which is coveted by all distinguished visitors who arrive in Rome. It was with keen interest that he beheld the great dome of St. Peter's which towers above the Vatican. After he had visited the art galleries and viewed the many treasures of art, he was given an audience with the Pope.

During his world tour he traveled a distance of 35,664 miles and arrived in New York July 1, 1907.

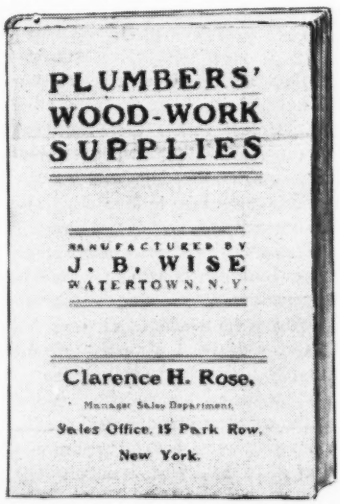
Thousands Welcome Him Home

On his return home the citizens of Watertown had planned a rousing reception in his honor. They were to welcome one of their foremost citizens who was public-spirited and intensely interested in the welfare and progress of the city. He was met at the train by an enthusiastic crowd estimated at from 10,000 to 15,000 persons which at that time represented half of the population of the town. When Mr. Wise appeared on the platform of the train he was greeted with a great wave of cheering. It was as if some presidential candidate had arrived and was about to deliver a long-expected campaign address. No national celebrity could have received a more genuine reception. From the station he was escorted by prominent citizens of the town to the City Hall, a procession following, arriving there amidst more outbursts of popular applause and the music of a brass band. The mayor delivered an address of welcome to which Mr. Wise ably responded, his voice betraying considerable emotion, for he had not anticipated that he was to be honored publicly—made into the man of the hour—upon his return to Watertown. He was then escorted to his home.

Lectures on Foreign Countries

Mr. Wise had carried a camera with him on his world trip and had taken pictures of all the historic landmarks and places of renown which he visited. These pictures were reproduced upon moving picture slides and used by him in giving illustrated talks on foreign travel before organizations in his home town and before the Circumnavigators Club in New York City, of which he was a member.

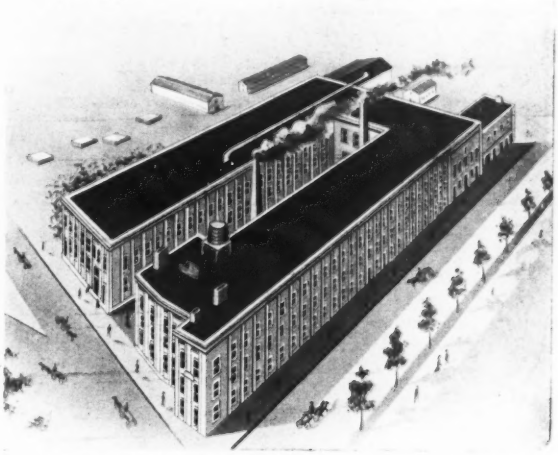
He delivered similar talks in Chicago and San Francisco. Included in his repertoire of talks was one delivered before the Eastern Supply Association in New York City. Here he had the opportunity to address those who are most interested and closely allied with the production and distribution of products, to the manufacture of which he devoted his life.



Second Catalog Issued by J. B. Wise

Mr. Wise possessed a faculty for making friends wherever he went. He always remembered the people whom he met and was able to call them by name. His wholesome and kindly personality radiated good will and cheer. People who entertained him as their guest once always wished to have the pleasure of doing so again. Even in far-away Honolulu this was true, for when he departed from the city where he had enjoyed genuine hospitality, those who had entertained him as a friend and a guest, garlanded him with wreaths of flowers, a native custom symbolizing special esteem and a tribute of honor to a distinguished visitor.

He was one of those thoroughly genial and jovial men of the trade whose presence was as "welcome as the flowers in May," wherever he set foot, east, west, north or south. His appropriate sense of humor was always relished by those who knew him. He possessed the happy faculty of illuminating an ordinary, matter-of-fact proceeding with the sparkle of original wit, frequently introducing laughter unexpectedly into the grind of business.


Mill Street Plant Of J. B. Wise As It Appeared In 1905

Like Lincoln he knew the value of timely humor, clean-cut and to the point. He felt that wit was the salt of the language and that it was not out of place betimes in the serious arena of business and industry,

When he had occasion to address an audience, his flashes of wit invariably enhanced the interest of his auditors. In his talks on foreign travel he found ample opportunity to express himself in the light of humor, particularly when he contrasted the habits, modes of life and environments of other lands with that of America.

A Man With a Fixed Idea

J. B. Wise could well be classified as a man with a fixed idea. He had a definite goal which he vowed he would reach, not by spurts, but by steady, consistent and constructive effort. He was a virile, full-nerved, terrific, high tension worker.

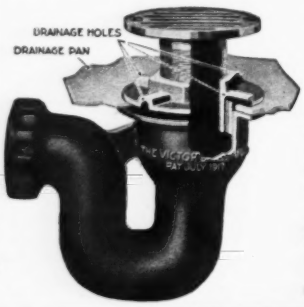
Work to him was a tonic. He reveled in it as he pushed ahead with his fixed and dominant idea, constantly building his walls of achievement, higher and thicker.

Had he been a self-complacent, self-satisfied man, his ability to attain actual results would have been considerably curtailed. It was his consciousness, however, of the need of fuller development that spurred him onward to renewed action. He knew that anything which was in motion in a forward direction was destined to progress. Self-satisfaction he knew was a rust—it was the beginning of stagnation in business as well as in anything else. History tells us how the decline of the Roman Empire was finally brought about by the smug self-satisfaction of those who had been the factors in its rise to world power. They ceased to continue the work of development; they lost sight of the fixed idea in constant national upbuilding. Disintegration and decay were inevitable. Mr. Wise instinctively knew the danger of this mental attitude, therefore, he was ever looking ahead, ever planning for broader and greater development in business and industry.

(Advertisement)

(The Fourth Chapter will appear in the March 23 issue)

VICTOR



Double Drainage Shower Traps and Drains

Feature No. 1

Victor Traps have a strainer adjustment of 4 inches, making accurate "Roughing In" measurements unnecessary.

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The Victor Brass Mfg. Co.
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TRADE MARK SIGNET REG. U.S. PAT. OFF.

No More Back Water

where the SIGNET Drain is used.

Keeps basement dry, clean and sanitary. A positive safeguard, either wet or dry, against sewer gas and water.

Brass working parts submerged—works automatically by gravity.

Always works. Always satisfactory.

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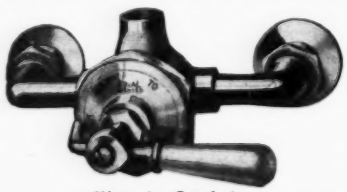
Mixing Valve for Showers

Simple in Operation—Few Working Parts.



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IRON CEMENT No. 3

For making tight screw thread joints.

Send for our illustrated instruction book

SMOOTH-ON for sale by supply houses.

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Washington

Seattle and Vicinity.

For the past six weeks Seattle has been experiencing what might be correctly termed a bungalow building boom. Shortly after the first of the new year, the immediate need for new residences became so pressing that large property owners and realty dealers determined to engage in a house building campaign, on a small scale, and the demand for homes has become so insistent, that, apparently, caution has been thrown to the winds, and everybody is engaged in building bungalows, cottages and small homes, regardless of the constantly increasing cost of building materials and labor. Real estate dealers are disposing of more residences than they have for years past; rentals have airplaned out of sight and everyone seems possessed of a desire to own a home.

The boom in residence building and the enormous amount of repair work which is included in the remodeling jobs is not particularly productive for the larger plumbing and heating establishments in the city. With but very few exceptions the work is being handled entirely by the smaller establishments in the outlying residence districts, usually where the work is located. Several of the larger down-town master plumbers have tried to get into the game by placing figures on a large number of bungalows, to be lumped into one job. However, they did not land the contracts, mainly because they could not compete with figures of the small shopowners. Excessive overhead costs compared with small overhead tells the story. As one of the largest shopowners, from point of contracts handled during the past several years, phrases it: "My ability to buy materials in carload lots does not offset their (the small shops) light overhead. Anyway, I believe the bigger fellows are glad that the smaller establishments are having their innings. They have had several comparatively lean years and now is the time for them to fatten up their averages."

The down-town shops, since the first of the year, have done a very satisfactory amount of work, and at this writing figures are being placed on several important apartment jobs, which will be as large or larger than most work finished last year. Besides these there are several industrial buildings and factories, which will be ready for figures in the very near future. Taking everything into consideration, the men of the trade in Seattle, both large and small, have nothing to worry about, as regards the amount of work to be done, during the present year.

The Rautman Plumbing & Heating Co., of King Street, recently secured the contract for the installation of a heating system in the large oil tank buildings being erected for Rogers, Brown & Co., on Harbor Island, Seattle. This company plans the expenditure of more than $300,000 in the construction of oil tanks, buildings and docks at this location, and the contract just awarded the Rautman Company includes the installation of heating apparatus and coils in the big tanks designed to hold soya bean oil and other oils, and will run into thousands of dollars.

The Seattle Chamber of Commerce has decided to ask the United States Government for a fund of $3,000,000, with which to provide new homes and housing facilities for the large number of shipyard workers that will come to Seattle in the near future. Unless adequate housing accommodations can be provided, it is feared the shipbuilding program in the Northwest will be seriously delayed.

A. E. Radford, of 216 Boston Block, Seattle, has had plans completed for a three-story apartment house, to be 90x62x33

ft., and cost $20,000. The building will contain two-room apartments, with private baths, and a modern heating system.

West Coast Heating Co., of Seattle, has been awarded the contract for a heating system to be installed in a new apartment house at Harvard Avenue, on its bid of $8,600. The plumbing contract was awarded to Randall Plumbing Co., of Seattle.

Hugh Morrison & Son, of 4209 West Alaska Street, Seattle, have received the contract covering the construction of 25 bungalows in the Scenic Park Addition for Walter A. Sutherland. This is in addition to the contract for ten bungalows, which is the first unit of 60 to be built. These structures will cost between $1,500 and $2,500 each and will be equipped with modern plumbing. Contractors will receive separate bids for plumbing.

George W. Lawton, of the Alaska Building, Seattle, is asking for bids on the construction of a five-story apartment house at Second and Blanchard Street, Seattle, for E. E. Uden. The structure will contain 45 two and three-room apartments and will cost about $75,000. Separate bids will be asked for the heating, wiring, hardware and plumbing installations.

Stephen Berg, of 423 Boston Block, Seattle, has recently taken out permits for fourteen five and six-room bungalows to be erected at Forty-seventh Street and Woodland Park Avenue. Bids will be asked for plumbing and heating systems.

Architect B. Dudley Stuart, Seaboard Building, Seattle, has completed plans and will soon call for bids for five four-room bungalows in West Seattle. Mr. Stuart has plans completed for thirty modern homes, contracts to be let in groups of five houses each. Separate bids will be asked for plumbing and heating.

H. S. Turner Co., Collins Building, Seattle, plans the immediate erection of ten four-room bungalows in West Seattle to cost about $2,000 each. Separate bids will be asked on the plumbing.

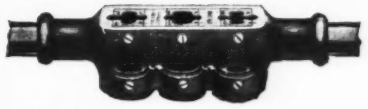
M. Aversen, of Downs Block, Seattle, has awarded contracts for plumbing and heating systems in an apartment house to be erected at Thirteenth Avenue and East Fir Street to the Pepper Plumbing Co. and West Coast Heating Co. respectively. Both contracts amount to about $10,000.

Other Cities in the State.

Building activities in Tacoma bid fair to set a record for February, and it is predicted that the month will go down in history as the best building period the city has ever experienced. Several large buildings and scores of residences are to be built, and a large number are already under construction. The remodeling of business houses, and dozens of old residences into modern homes has kept the trade exceedingly busy for the past month. Jobbing work has been extremely active, and prospects are bright for even greater activity. Practically every architect in Tacoma is busy figuring on plans for buildings under consideration and the building trades are all busily engaged in getting homes ready for eager buyers.

George Lawlor, of Tacoma, is planning the construction of 500 homes in that city's tideflats district, providing the County Commissioners will build one mile of road to the property. The project is looked upon with favor as offering a partial solution of the problem of housing industrial workers.

A 500-room hotel is to be built at Greene Park, Camp Lewis, at a cost of $500,000. Four hundred of the rooms will have connecting bathrooms, and a big heating plant will be installed. Capt. M. D. Welty, aide-de-camp to the Commanding General, will be in charge of the construction.



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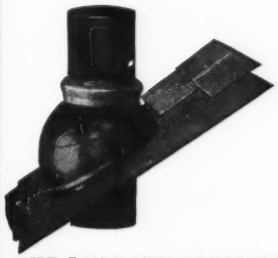
GTD

NO ROOF IS SUPERIOR TO ITS FLANGE



Therefore, some PLUMBER is the father of every leaky roof.

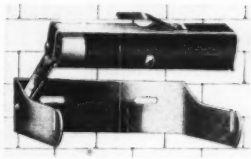
The Bullard Roof Flange

is acknowledged as the only PERFECT FLANGE by busy men who have made satisfying installations.

THE BULLARD SPECIALTY COMPANY, Tiffin, O.

The B-E-N-S TOILET PAPER FIXTURE

A New Principle



Which Pulls Trade

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The S. J. Bens Manufacturing Corporation
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TRY BLUE SEAL AT OUR EXPENSE

This liberal offer is for plumbers who have never used BLUE SEAL. It gives an opportunity to try at our expense the original Money Back Drain Pipe Solvent.

Cut out this advertisement, mail it direct to us with your own address—and your jobber's. We will then send you, transportation charges prepaid, six one dollar cans (2 lbs.) BLUE SEAL

DRAIN PIPE SOLVENT

Use these six cans according to directions to clear waste and drain pipe stoppages. If the Solvent does all we claim for it you are to send us $3.60 (special price for plumbers) within ninety days. If not the trial costs you nothing.

10,000 plumbers now use Blue Seal. Over 300 jobbers stock, sell and recommend it. If you haven't used it, this is your opportunity.

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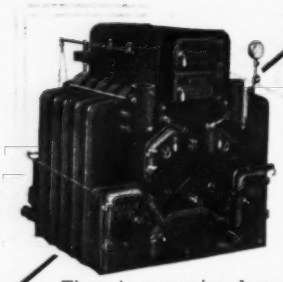

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The Magazine Feed Boiler with the Adjustable Throat

Saves from one-third to one-half in fuel bills. Burns any size or kind of fuel.

Requires coaling once a day in coldest weather—two or three times a week under ordinary conditions.

There is a growing demand for Magazine Feed Boilers. Write for complete information. Be posted and you're protected.

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Cistern and Riveted Pressure Boilers

can be described in one word—

Everlasting

They not only *last* but give continuous satisfactory service.

Made in any size, pressure or capacity desired.

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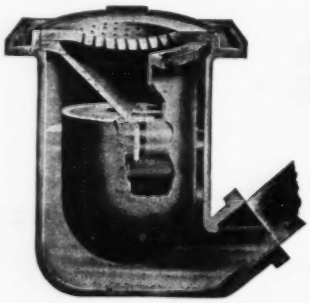


The Original

DONOVAN FLOOR DRAIN AND SAND ARRESTER

Note Interior Removable Chamber

For Sale by All Dealers

Made by SANITAS MFG. CO.

105 Washington St., Boston **Send for Circular**

The City Commission of Colfax plans the installation of a new heating system in the city hall. Chairman Neal of the Fire and Water Committee will have charge of the work.

M. J. Westerfield, of Tacoma, submitted low bid at $35,843, for the construction of an additional building at the State School for Deaf at Vancouver. The following bids were submitted for plumbing and heating: (a) plumbing (b) heating: Fred Smith, Chehallis, (a) $3,585, (b) $5,100; Appling-Griggs Co., Tacoma (a) $3,679; (b) $4,489; Rushlight & Hastorf, Portland, (a) $3,227, (b) $4,597. All bids have been taken under advisement.

Atwood & Braley, of Vancouver, were awarded the contract for plumbing in the Knights of Columbus recreational building at Vancouver Barracks.

The City Engineer Department of Tacoma, will erect a municipal comfort station at Tenth and Pacific Streets, to cost $10,000.

Obituary

Charles H. Stone.

Charles H. Stone, for many years engaged in the hardware and plumbing business at Keene, N. H., died at his home in that city, on Monday, March 4th. Mr. Stone was born in Bradford, N. H., but had resided in Keene for many years. He was born in 1839.

George P. Brintnall.

George P. Brintnall, a retired master plumber of Buffalo, N. Y., died at his home in that city on Friday evening, March 8th, after a long illness. He was superintendent of plumbing at the Pan-American Exposition in Buffalo in 1901, and he established the plumbing trade school, which is now conducted by the Buffalo Y. M. C. A. His wife survives him.

John Kirkwood.

John Kirkwood, who had been engaged in the plumbing business at Lenox, Mass., for 30 years, died at his home in that town on Sunday, March 3rd, in his 70th year. Previous to going into business for himself at Lenox, Mr. Kirkwood was connected with a large New York plumbing firm, which did much work in the summer homes of New York people in the Berkshire Hills and he had superintended many of these jobs. Mr. Kirkwood was born in Scotland, but his parents came to New York when he was four years of age. After settling in Lenox in 1888 Mr. Kirkwood took an active interest in town affairs. His widow survives him.

Henry K. Paine.

Henry Knowles Paine, who retired in 1912, after having been engaged in the plumbing business for more than 40 years, died at his home in Brookline, Mass., on Friday, March 8th. Mr. Knowles, who was over 80 years of age, had been in failing health for some years and was unable to resist a shock a few days before his death. He served with the Union forces in the Civil War and after his discharge settled in Brookline, where he engaged in the plumbing and hardware business with his brother Isaac Paine, who previously had conducted the same line of business in Newton. In 1912 they sold their establishment to two of their employes, Frank A. George and William H. Goudey and both retired from active business. Two sons survive.

HEATING GREENHOUSES.

(Continued from Page 406.)

heating boiler is commonly used, when the work is within its capacity. For plants of still larger size the sectional boiler is generally employed, while the most extensive plants commonly make use of horizontal tubular or certain types of water-tube boilers. If for hot water, the entire shell of the tubular boiler may be filled with tubes, as no steam space will be required under these conditions.

In calculating the size of boiler, its capacity may be based upon either the radiation to be supplied or the heat loss from the building. Catalogues of cast iron heating boilers commonly give ratings based upon the radiation, which they will carry, in which case the mains and connections should be counted as well as the coils. For accurate work, the heating surface in the piping should be computed, but generally it is estimated by assuming it to be about 10 per cent of the surface in the coils. Hence, the total surface to be supplied by the boiler is found by multiplying the radiating surface in the coils by 1.1 In the average case the catalogue rating should be multiplied by 0.75 to obtain the economical working capacity. When computed on the heat loss basis, multiply the total computed heat loss by 1.1 for a factor of safety, and divide this by the value given in the last column of the following table, which will give the sq. ft. of grate area required. These figures represent the B. t. u. which will be utilized per hour from each sq. ft. of grate area under the average rates of combustion, which will be obtained with boilers of different size.

Sq. Ft. of Grate	B.t.u. Furnished per Sq. Ft. of Grate per Hour
1— 5	32,000
6—10	40,000
11—15	48,000
16—20	56,000

In using this table it will be necessary to assume the probable value from the last column of the table for the first trial and see what grate area is given, if this does not come within the bounds for the divisor chosen, other trials must be made until it does. For example, if the total heat loss, divided by 40,000, calls for a grate area exceeding 11 sq .ft., then make another trial using 48,000 as a divisor, and so on until the right combination is obtained.

Tubular boilers of all kinds are usually rated on a horsepower basis. To obtain the boiler power in this case, multiply the total computed heat loss per hour by 1.1 and divide the result by 30,000. The result will be the horsepower required, whether for steam or hot water.

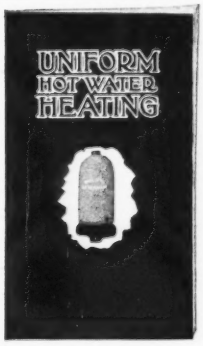
If based on the sq. ft. of radiation to be supplied, multiply the surface in the coils by 1.1 and divide by 90 for steam, and by 120 for hot water; the result will be the boiler horsepower required.

Selection of a System.

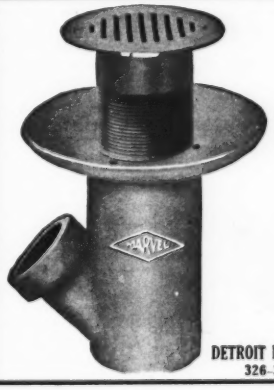
As between hot water and steam there is no question but what the former is the most desirable for general use within certain limits. It produces a mild form of heat especially suited to plant life, and, on account of the lower temperature and larger radiating surface, it gives a better distribution of heat, both to the air of the building and beneath the raised benches. Furthermore, it requires less attention, and comparatively long periods between firing are permissible without damage to the plants, owing to the large amount of heat stored in the water at normal working temperature. On the other hand, for glass exposures over 30,000 or 35,000 square feet, the mains become so large, and the volume of water so great, that it lacks flexibility, and rapid changes of temperature are impossible. This is especially noticeable on bright days, when the heat from the sun is practically suf-

TRADE H MARK
See That This Trade Mark Is Stamped on Your Bibbs, Cocks, Stops and Valves
IT MEANS SERVICE
Immediate Shipments—Attractive Prices on All Plumbing Brass Goods.
THE HAYDENVILLE COMPANY
Since 1845 HAYDENVILLE, MASS.

Fitters—Attention!
THE
PJ
PIPE JOINT COMPOUND
This compound is necessary as it will not clog the most delicate valves. *50 lbs., or 8 gals., $6.00*
CHEAPER THAN OIL ALONE
WRITE US
BOTTUM VALVE CO. 213 Schiller St. CHICAGO



Write for This Booklet
It tells you all about the
Ball Seal Generator
for Hot Water Heating.
This generator increases circulation and radiation. Prevents sluggish, water-logged conditions. Reduces fuel cost. Operates without noise. No attention needed.
Just what you want for that next job.
The Ball Seal Generator Co.
Easton, Pa.



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"2 in 1"
Adjustable Shower Trap
embodies the double drainage principle.
Used by most discriminating plumbers. The trap you will prefer after giving it a trial.
Cast iron, black or galvanized. Tapped 2-in. iron pipe.
We make a complete line of the famous MARVEL Traps.
Order from your jobber.
Made by
DETROIT MARVEL BRASS MANUFACTURING CO.
326-332 Rivard Street, Detroit, Mich.

Plumbers Specialties

Brass Goods for the Plumbing Trade

Closet Tank and Seat Trimmings, Connected Waste and Overflows, Traps, Supply Pipes, etc.

Any Reliable Jobber can furnish the "Femco" Line from stock

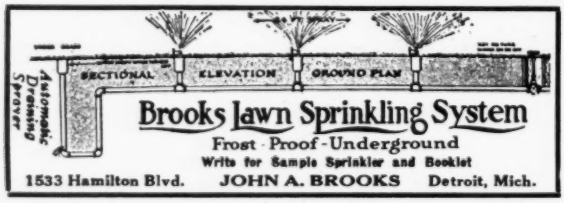
Frost Manufacturing Co., Kenosha, Wis.

No. 2A Thermostat

MFG. CO. ROBERTSHAW YOUNGWOOD, PA.

The standard for 30-40 gal. boilers, and single coil heaters or equivalent. Has ⅝-in. gas openings.

We Make All Sizes



Brooks Lawn Sprinkling System

Frost-Proof-Underground

Write for Sample Sprinkler and Booklet

1533 Hamilton Blvd. JOHN A. BROOKS Detroit, Mich.

K-K Cleans Closet Bowls

"The Sanitary Way"

Shake a little into bowl, let remain a few minutes, then flush. Leaves bowl and trap free from stains and odors. K-K is scientifically prepared for this purpose only—not a general cleaner.

Keep a supply on hand—your trade wants it.

The Chamberlain Company

Manufacturing Chemists - - - - - Pittsburgh,

Use "Desolvo" for Cleaning Clogged Pipes

Makes No Noise

A Quiet Pump in Your Home

You can keep Pump noise out of your home by keeping out the kind of a Pump that makes a noise.

The Geo. J. Roberts Co.

Dayton, Ohio, U. S. A.

Filters for Swimming Pools

All Types for All Purposes

The New York Continental Jewell Filtration Co.

General Offices: Nutley, N. J.

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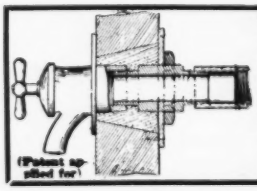
Happy Is the Man Who Uses the Martin Portable Vise Stand and Pipe Bender

because he knows he can carry it anywhere. All he has to do is to insert the legs and go to work.

Stands securely anywhere. Equipped with chain or hinged vise. Bender has capacity of ⅛ inch to ¾ inch. Vise capacity, 2 inches. (Patented Jan. 26, 1915.)

Write to-day for special 10-day free trial offer.

H. P. Martin & Sons, 621 E. Second St., Owensboro, Ky.



THE LILGER LAUNDRY BIBB CONNECTION

is a practical device for laundry tray improvements. Easily attached. Holds bibb in place by nut and washer arrangement. Leak-proof. Saves time and money

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THE LILGER COMPANY

1246 W. 72nd Place, Chicago, Ill.

ficient for all warming purposes during the afternoon, but where the temperature drops rapidly after sunset.

Steam is more flexible than hot water, as the pressure may be gotten up quickly, when the full power of the plant is required, and for larger glass surfaces than those stated above it will give a better distribution of heat and will prove less unwieldy than water, unless the latter is provided with forced circulation and a system of piping properly balanced to prevent short-circuiting. Steam, however, requires a night fireman, as a considerable fire is necessary to generate steam, and there will be no heat in the coils unless there is sufficient pressure to drive it through the mains.

In greenhouses, devoted entirely to the growing of roses, steam has been found especially desirable. There can be no hard and fast rule for deciding between water and steam, and the various points must be carefully considered before choosing a system, and, even then, modifications of the one decided upon must be given due study for any particular case.

THE DAY BOOK OF THE BON TON DE LUX PLUMBING CO.

(Continued from Page 413.)

the difference, but if it happens to be the other way, we will deduct the Two Dollars and the Bon Ton De Luxe will pay that difference." "Gee, but it was a relief to hear the door slam after that bird."

March 9, 1918.

A slick-looking lad, wearing one of those trick overcoats like they wear over at the U. of M., came in this morning and says that he is with Bradstreet and would like a statement. Well, I knew that we hadn't been doing any work for Bradstreet, but I makes a bluff at it and looks through the ledger and the day book and says that he must have made a mistake, because we ain't got any account with any Bradstreet. And then he begs my pardon for something, I don't know what, and suggests that I look over the card which he gave me. Well, it didn't tell me a whole lot more, and so he explains that his company wants a statement of everything we got and everything we owe and what contracts we got on hand and a lot more stuff like that and he gives me a little form to fill out. Well, it looked like a lot of crust for anybody to want all that dope, and so I asked him what he wanted it for and he says that they have had an inquiry from one of their clients. Of course, I have been learning a lot since me and Hank got into this business game so I told him that this was my busy day, and that I would have it ready for him next week. It looks like Flannigan's bookkeeper can spend his cigar money for War Savings Stamps.

(To be continued.)

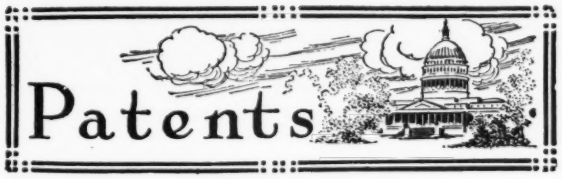
A Camofleur.

A good story is told by the dean of Carlisle. It concerns a clergyman who, taking occasional duty for a friend in one of the moorland churches in a remote corner of Cumberland, was one day greatly scandalized on observing the old verger, who had been collecting the offertory, quietly abstract a half crown before presenting the plate at the altar rails.

After services he called the old man into the vestry and told him, with emotion, that his crime had been discovered.

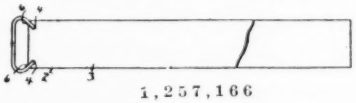
The verger looked puzzled. Then a sudden light dawned on him.

"Wy, sir, you doan't mean that ould half crown of mine! Why, I've led off with he this last fifteen years."—"Pittsburg Chronicle Telegraph."



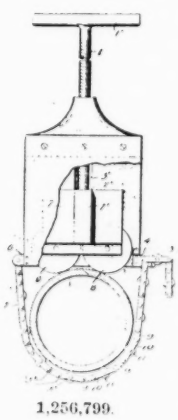
Heating Department.

1,257,166. Pipe-Covering Band. Maurice E. White, Norristown, Pa. In a device of the character stated a metallic strap and a wire loop of sufficient width to register with said strap, said loop being immovably and fixedly attached to one end of the strap and projecting beyond the end of said strap to which the loop is attached so as to be engaged by the opposite end of said strap for the purpose specified.

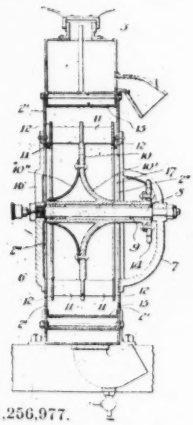


1,257,166

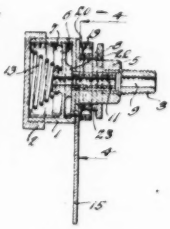
1,256,799. Pipe-Cutter. Clint T. Hime, Hindes, Tex. A pipe cutter comprising a frame consisting of a pair of side pieces connected at the top thereof, cutters mounted between the side pieces, blocks arranged between the side pieces, and a flexible chain provided with lateral projecting pins, said chain adapted to have one end pivotally connected to one of the blocks, the other block having a vertical slot therethrough and a recess in the upper edge of the outer wall of the block, said recess forming shoulders, and the opposite end of said chain arranged to pass through the slot and recess to facilitate the pins thereof engaging the shoulders of the recess for locking the chain around a pipe.



1,256,799.



1,256,977.



1,257,134

1,256,977. Radiator. Tracy V. Buckwalter, Altoona, Pa. In a radiator, the combination with cooling fluid circulating means comprising headers and sets of tubes having their ends connected by said headers, of plates connected with said headers and having oppositely disposed apertures, a journaled wheel having a web disposed between said apertures and vanes separated by said web, and chokers for restricting the free space around said wheel and for facilitating the active circulation of air by said wheel in contact with said tubes.

1,257,134. Auxiliary Air-Valve. George C. Shivers, Savannah, Ga. In a device of the class described, a casing, a valve mounted therein and dividing the same into a vacuum chamber at one side and an air chamber at the other side, said casing having a supply passage leading to the air chamber normally closed by the valve aforesaid, said valve, also having a passage therethrough establishing communication between the vacuum chamber and the supply passage and in

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Simple Sanitary Satisfactory
Designed for general use, and especially where hard usage is unavoidable. Lever or push button action.
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Noble Court and West 2nd Street Cleveland, Ohio

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For use any place there is a cold water outlet. Neat heavy design, unusually well made. See larger ads last issues. Ask your jobber for prices. Write for booklet of full line.
Fountain Faucet Co.
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Handle Up—Convenient Bubbler.
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UNCLE SAM has tested our
STANDARD PORTABLE VISE BENCH AND PIPE BENDER
and same has proved satisfactory. HE is now one of the THOUSANDS of satisfied users we have. Drop us a line and we will send you full particulars, or ask your jobber for same.
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F. & W. Electric House Pumps
are of large capacity, economical, silent in operation, and easily installed. *Send today for bulletin.*
FLINT & WALLING MFG. CO. KENDALLVILLE, INDIANA

VAPOR MOUAT HEAT
You don't pay for heating unoccupied rooms if you install the Mouat Graduating Vapor System. The heat may be entirely shut off in any radiator, and immediately the expense, for that radiator, ceases.
Write for further particulars.
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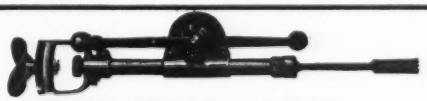

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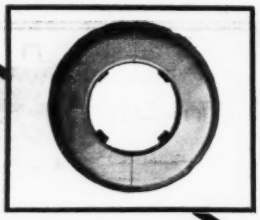
For drilling all size holes, ¼ to 1½" in concrete, brick and stone, in walls, floors and ceilings for expansion bolts, pipe hangers, etc. Write for folder. Manufactured by
Daugherty-Smith-Phillips Co., 500 W. Division St., Chicago, Ill.

Look For
NATIONAL
The Name
Were You Surprised?
¶ An expansion loop of 12-inch "NATIONAL" Pipe is not to be seen in many plants, therefore the illustration of an expansion loop of such unusual dimensions must have been like "news."
¶ If you missed the announcement—"NATIONAL" PIPE FOR EXPANSION LOOPS in March 2nd issue, turn to it now, page 78.
NATIONAL TUBE COMPANY Pittsburgh, Pa.

Warco



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is a heavy stamped steel plate substantially constructed. It is nickeled on copper and highly polished.

Made in all sizes from ⅛-inch to 3 inches.

It may be cut to fit any condition. Can't break and will stay where it is placed.

The design is handsome and the finish cannot be equalled by any other plate on the market.

Ask for full details, prices, etc.

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63 W. 37th Street
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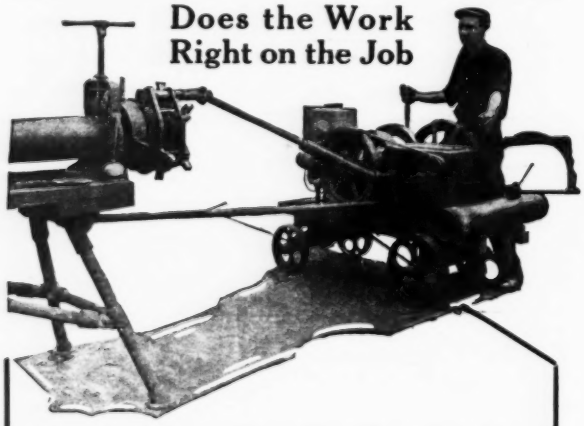
Does the Work Right on the Job



The Columbus Portable Pipe Machine

is self-contained. Has own gas engine power.

Attaches to any geared die stock.

Threads 2½" to 6" pipe without change of die stock.

Equipped with 17" saw, also emery wheel for grinding tools.

Passes readily through a 2' 8" door.

See our folding Pipe Bench.

Ask your jobber, or write

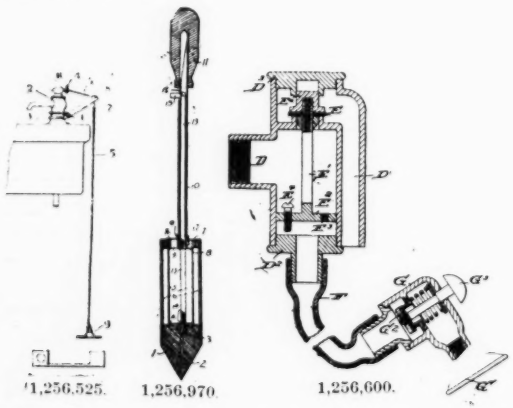
COLUMBUS MACHINE WORKS
COLUMBUS, INDIANA

alinement with the latter, and a spring in the vacuum chamber pressing the valve against the end of the casing and closing the supply passage to the air chamber, said casing having an air inlet for admitting air to actuate the valve when a vacuum is created in the vacuum chamber and for thereupon supplying air to the supply passage aforesaid.

Plumbing Department.

1,256,525. Faucet-Operating Mechanism. Carleton Dederer, Los Angeles, Cal. The combination with a self-closing faucet of standard construction of a detachable operating device comprising a mechanism fitted to said faucet and provided with hinge-like holding means, a lever-arm secured at one end to said means, a chain attached to the other end of the lever-arm, the chain being also operably attached at one end to the handle of the faucet, and a pedal to which the other end of the chain is attached.

1,256,970. Fountain Soldering-Iron. Fred Anderson, Tacoma, Wash. A soldering iron, comprising a head having an outlet passage, a plate in line with and spaced from the head, inner and outer concentric tubes, the inner tube being seated at its ends against the opposing faces of the head and plate, and the outer tube being threaded at its ends to the head and plate, and a rod passing through the plate and inner tube and entering the head a short distance and having a lateral passage to register with the outlet passage of the head, said rod having screw thread connection with the plate, whereby on turning said rod its inner end is advanced and seated against the soldering head and its passage moved away from the outlet passage of the said head to cut off delivery of the solder contained in the inner tube.

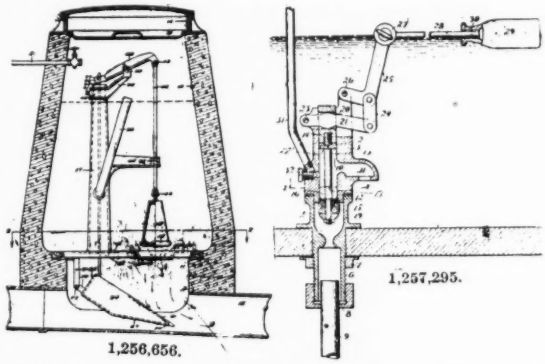


1,256,525. 1,256,970. 1,256,600.

1,256,600. Shampoo-Spray. Frederick A. Schossow, Detroit, Mich. In a device of the character described, a casing adapted to receive water from a source of supply and provided with two discharge outlets for the water, a valve adapted to close one of said outlets, a disk spaced from the valve of relatively larger diameter than the valve and adapted to reciprocate therewith, a nozzle connected with the other discharge outlet, and a valve controlling the delivery of water through the latter, whereby upon opening the valve controlling the passage of water through the nozzle, the pressure of the water upon the disk will serve to force the first named valve to its seat, or, upon closing the nozzle the pressure of the water upon the first named valve will force it from its seat that the water may be discharged through the other outlet.

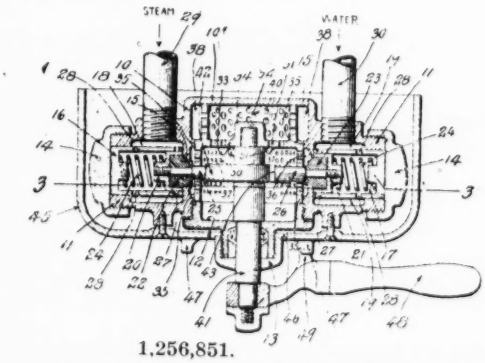
1,256,656. Automatic Sewer-Flusher. Garrie H. Burns, Los Angeles, Cal. A sewer flushing device comprising a well in communication with a sewer pipe at its lower end, a valve member normally preventing communication between the well and pipe, a tubular vertical standard from which said valve member is supported, an actuating bucket mounted beneath

said standard and in communication with the opening therethrough, rigid connecting means between said bucket and the valve member whereby water flowing through said tubular standard to the bucket will cause the valve member to be lifted to allow the well to open, and a cover upon the bucket and having a restricted outlet opening; so that when the bucket is filled to overbalance and open the valve, the valve will remain open until the water flows through the restricted opening from the bucket.



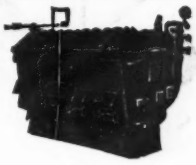
1,256,656. 1,257,295.

1,257,295. Ball-Cock. Michael A. Slattery and William F. Dockery, San Francisco, Cal. A ball cock including a casing having an inlet and an outlet, a piston in the casing, a rod depending from the piston and having a shoulder, a guide member formed independent of the rod and being apertured to receive the rod and abutting said shoulder at one end of the member, said guide member having water diffusing passages, means to operate the rod, a valve apertured to receive the rod and abutting the other end of said guide member, and means to hold said valve on the rod and thereby removably hold the guide member against the shoulder, said valve ably hold the guide member against the shoulder.



1,256,851.

1,256,851. Water-Heater. Walter J. Warner, St. Louis, Mo. In a water heater, a housing provided with a mixing chamber and a pair of oppositely disposed valve chambers there being openings from said valve chambers to the mixing chamber, tubular connections to the valve chambers, said mixing chamber being provided with an outlet, valve housings in the valve chambers, said valve housings being provided adjacent to their inner ends with openings, valves normally closing the openings into the mixing chamber and the openings in said valve housings, a plurality of perforated walls within the mixing chamber, there being apertures formed in the valve housings near their outer ends to permit fluid to enter the chambers in said valve housings behind the valves therein, a rotatably mounted shaft axially disposed within the mixing chamber, and means on said shaft for engaging parts of the valves to unset the same.

ECONOMY  EFFICIENCY

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Pierce Down Draft, Magazine Feed, Smoke Consuming, Heating Boiler
Saves Fuel Labor
Manufactured only by
PIERCE, BUTLER & PIERCE MANUFACTURING CORP.
Brooklyn Boston Worcester — NEW YORK — Syracuse — Philadelphia Baltimore Washington

Eagle All Lead Roof Flange

LEAD PIPE
Length, 6 inches
Diameter, 4½ inches
Made in Angles, 45 deg., 22½ deg. and Straight.

SIZE OF APRON
15 inches Square

No Caulking To Be Done
Joints Lead-burned — No Solder Used
Flexible Adjustable Economical
Write for Circular and Prices.
Manufactured only by
The Eagle-Picher Lead Co.
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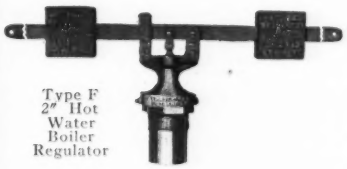
Damper — Regulators — Tank

High Pressure
Low Pressure
Hot Water
Vapor

Hot Water
Cold Water
Vats-Kilns
Pots-Dryers



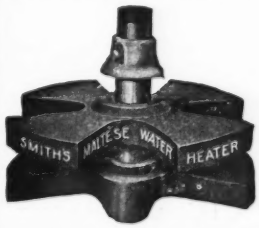
Type F
2" Hot Water Boiler Regulator

The Famous Kingsbury Electro-Flush Valve

National Regulator Company
208-12 S. Jefferson St., Chicago

TRADE METAPHRAM MARK

Smith's Jointless Hot Water Attachments



are the ONLY ones that give water circular motion and that have no obstruction to the natural movement of the water.

Smith's Maltese Heaters
are made in 8 sizes—can be used in any furnace.
Easy to install. Highly efficient. Thoroughly tested.
Write for Catalog.

Charles Smith Company
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SELL YOUR SURPLUS COUPLINGS and fittings. Write us. The A. & J. Mfg. Co., 557 W. Lake St., Chicago. tf

Government Proposals

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C., February 25, 1918.—Sealed proposals will be opened in this office at 3 p. m., March 26, 1918, for a pumping plant in the United States post office, courthouse, and customhouse, Biloxi, Miss., in accordance with specifications, copies of which may be had at this office or at the office of the custodian, Biloxi, Miss., in the discretion of the Supervising Architect. James A. Wetmore, Acting Supervising Architect. 3-9; 16

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We manufacture and furnish every style of valve required for piping a job or installing a heating system.
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